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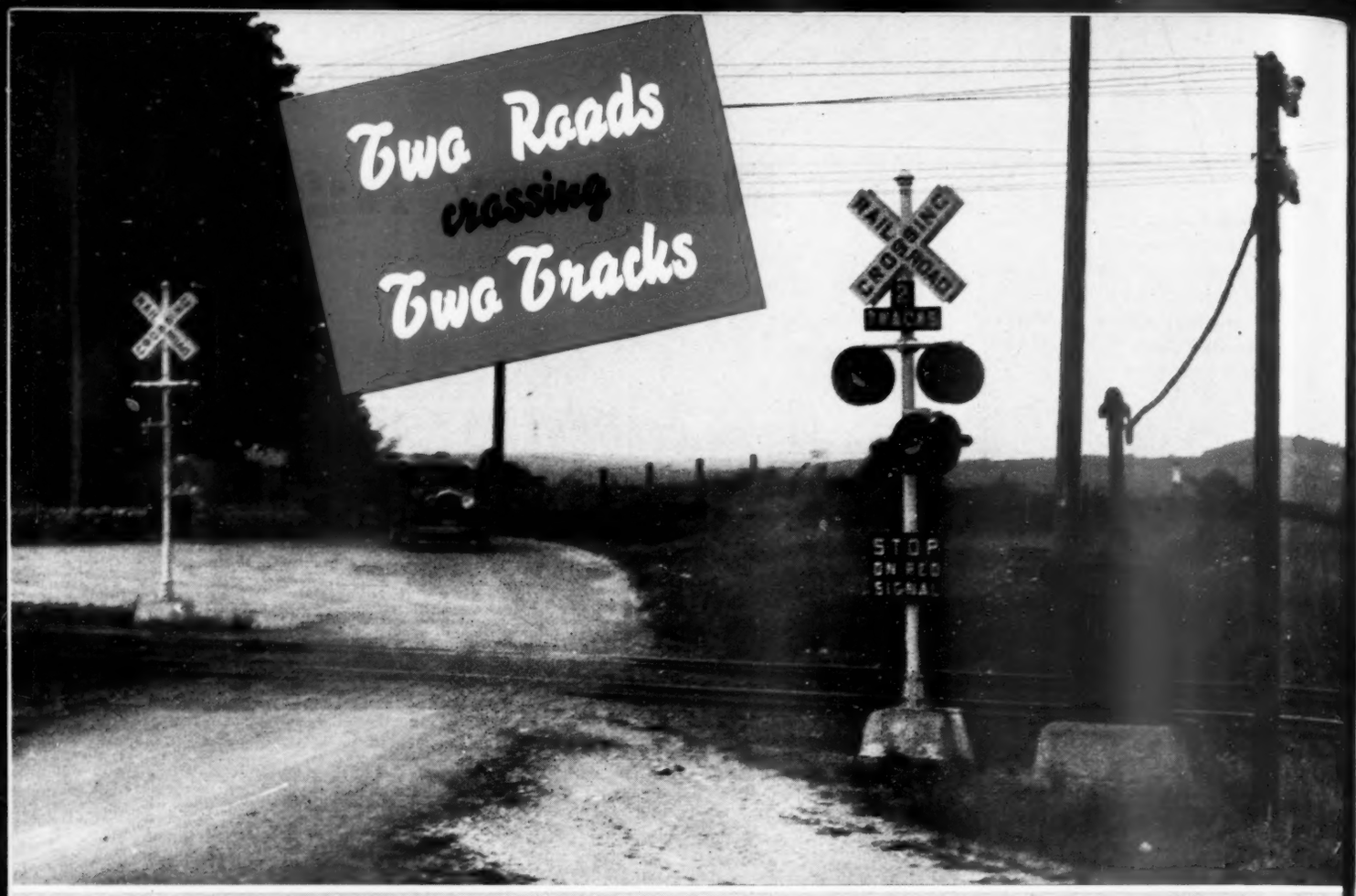

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RAILWAY AGE

Proposed Transport Legislation—Machinery and Policies

In an editorial in its issue of April 8 entitled "What —And Why—The Railway Problem Is," *Railway Age* showed conclusively that the real problem is that of widening the margin of net earnings of the railroad industry. Some important changes in the *machinery* of regulation are proposed in legislation emanating from different sources. It cannot be emphasized too strongly that any or all the changes in *machinery* proposed would do no good unless they were accompanied by or caused changes of *policy* resulting in widening the margin of net earnings.

The reasons why this is true are strikingly illustrated by the following statistics in addition to those given in the editorial above referred to which we published last week: In the five years ending with 1917, net earnings (net operating income) were 25 per cent of gross earnings; average return earned on investment was 4.8 per cent, and average annual increase in *total* investment was 660 million dollars. In the five years ending with 1929, net earnings were only 18.5 per cent of gross earnings; average rate of return was 4.7 per cent, and average annual increase in total investment was 570 million dollars. In the five years ending with 1938 net earnings were only 14 per cent of gross earnings; the percentage of return earned was less than 2 per cent; and there was *no increase* at all in *total investment*. Finally, in 1938, net earnings were only 10.5 per cent of gross earnings and return on investment only 1.43 per cent.

Needed—a Billion Dollars a Year

There was no increase in total investment in the five years ending with 1938 because property retired from the investment account equaled or exceeded "additions" and improvements made. There was, for example, a continuing decline in the number of locomotives and cars included in the investment account. The industry was static or actually retrogressing.

The "Committee of Six," which was appointed by President Roosevelt and composed of three railway executives and three labor leaders, agreed upon and made the following statements in its report: "An average of a billion dollars a year can justifiably be expended in further modernizing and improving (railway) properties, including acquisition of new equipment. This would be in addition to normal expenditures for maintenance. The resulting gain in employment would extend beyond the railroads to all those engaged in producing and manufacturing railroad supplies and materials." Experience over a long period of years shows that annual purchases of railway equipment and materials average about the same as annual net earnings and are determined by them. There can be no increase to an average of a billion dollars a year in expenditures for "further modernizing and improving railway properties, including acquisition of new equipment," unless the amount of net operating income earned in 1938 (373 million dollars) is about trebled.

The Proposed Transportation Board

One proposal of the Committee of Six is the creation of a new Transportation Board. The regulation of the rates of all carriers would be concentrated in the Interstate Commerce Commission. The Transportation Board would devote its first year to investigating and making a report upon the entire transportation situation, and especially subsidies and the services each class of carriers is most fit to perform. After that there would be transferred to it practically all the functions and duties of the Interstate Commerce Commission excepting the regulation of rates; and the Bureau of Public Roads (now in the Department of Agriculture) and the review of all waterway projects would also be transferred to it. A bill (H.R. 4862), drafted for the Committee of Six and including creation of the Transportation Board, has been introduced. Another bill has been introduced by Senators Wheeler and Truman to accomplish very much the same purposes, but without creating the independent Transportation Board. It would concentrate all regulation of all carriers in the Interstate Commerce Commission with authority in the commission to create boards subsidiary to it to perform duties similar to those proposed for the independent Transportation Board.

It is no secret that differences among railway executives have developed regarding the creation of the proposed independent Transportation Board. Some executives oppose it because, while they favor concentrating

regulation of all carriers in the same body or bodies, they are apprehensive that an independent Transportation Board, with the functions and authority proposed by the Committee of Six, would seek to cause railway consolidations, co-ordinations and other measures to be carried out in ways that would hinder economies in railway operation. They fear that the legislation finally adopted affecting the competitive opportunities of railways and other carriers will not result in as large increases of railway traffic and gross earnings as members of the Committee of Six hope, and that in consequence policies favored or followed by the proposed Transportation Board affecting operating expenses would prevent the imperatively needed increase in railway net earnings.

Operating Expenses and Taxes Versus Net Earnings

It cannot be said that the Interstate Commerce Commission has made very enlightened or energetic efforts to maintain railway net earnings. But neither can it be said that the decline of net earnings has been by any means entirely due to the commission's policies. Statistics given in the editorial published in these columns last week showed that while the gross earnings of the railroad industry in 1938 were slightly smaller than in 1916, its operating expenses, principally because of higher wages, were almost a half-billion dollars larger and its taxes 184 million dollars larger. They also showed that while the gross earnings of the industry in 1938 were almost a half-billion dollars larger than in 1933, total operating expenses, principally because of higher wages, also were almost a half-billion dollars larger and taxes 91 million dollars larger. It can hardly be said, in view of these figures, and especially of those for 1933 and 1938, that the industry is suffering solely from lack of gross earnings.

It needs a large increase in gross earnings due to improvement in general business, to changes in regulation of rates and to adoption of policies equalizing government treatment of competing carriers. But policies tending to maintain or increase its operating expenses and taxes obviously would partially or entirely defeat attainment of the essential objective—viz., a large increase in the margin of net earnings. Thus from the standpoint of a real solution of the railroad problem the question is, would the Interstate Commerce Commission, or an independent Transportation Board, or both, be more likely to so administer provisions of existing and new legislation as not only to help increase railway gross earnings, but as also to prevent unwarranted maintenance or increase of operating expenses?

The Proposed "Reorganization Court" and Fixed Charges

Another proposal is the creation of a federal "Reorganization Court" to which would be transferred from all other federal courts the financial reorganization of bankrupt railroad companies. The report and program of the Committee of Six, after advocating establishment of this special court, contained the following: "We accordingly recommend appropriate statutory provision to the effect that no reorganization plan shall be approved by the court unless the fixed charges for which it provides are in an amount which is within the ability of the property to earn *at all times, as demonstrated by its past experience.*" There has been controversy about what this means. Does it mean that if in *any year* a railway has failed to earn all its fixed charges it should have all its indebtedness and fixed charges wiped out; that if in any year a railway has earned only one-quarter of its fixed charges it should have all but approximately one-quarter of its indebtedness and fixed charges wiped out, and so on?

The Lea bill, drafted to carry out the Committee of Six's program and introduced in the House (H.R. 4862), directs that any reorganization plan adopted "shall provide for fixed charges . . . in such amount that, after due consideration of the probable prospective earnings of the property in light of its earnings experience and all other relevant facts, there shall be adequate coverage of such fixed charges by the probable earnings available for the payment thereof."

Senator Wheeler opposes creation of the Transportation Board but favors creation of the Reorganization Court—probably because he is always for reducing railway fixed charges; and Bill S. 1869, introduced by Senators Wheeler and Truman, in addition to a provision similar to that just quoted, says, "it shall be a rebuttable presumption that the expectable future average annual earnings . . . will not exceed the annual average earnings . . . during the six calendar years preceding the date of the closing of the hearings . . . provided that there shall be no presumption that the expectable future average annual earnings will equal such average earnings."

"Expectable Future Earnings," Fixed Charges and New Investment

The "expectable future average annual (net) earnings" of a railroad reorganized in 1939 would be the average annual earnings made by that railroad in the six years 1933-1938, inclusive. During those six years the net income (after fixed charges) of the entire railroad industry averaged only 20 million dollars a year, as compared with an annual average of 732 millions in the six years ending with 1930. Many railways, after having earned their fixed charges by wide margin for many years before the depression, fell far short of earning them in the six years 1933-1938, and became actually or virtually bankrupt.

The determination of the property rights of investors in bankrupt railroads formerly was considered an exclusive function of the courts. Did Congress ever have, or has it now, the constitutional power to dictate to the

courts how largely investment in railroad bonds shall be wiped out? If so, is it fair or in the public interest for Congress to require the adoption in reorganizations of the major premise that future net earnings will not exceed those made in six out of the worst seven years of the worst and longest depression in history?

In the six years ending with 1930 the net earnings (net operating income) of the railroad industry averaged 1,116 million dollars annually. In the six years ending with 1938 they averaged only 511 million dollars. If future net earnings are to average only as much as those of the last six years, obviously the railways will be unable to raise the billion dollars a year the Committee of Six agreed should be raised and expended *in addition* to normal expenditures for maintenance; for during the six years ending with 1938 there was no increase whatever in total railroad investment.

Opposition to Transportation Board and Reorganization Court

The opposition from some railroad sources to creation of the proposed Transportation Board and Reorganization Court is mainly due to two facts. One is the proposed legislative provisions giving directions to the proposed board and court in regard to how they shall perform duties affecting railway operating expenses and the reorganization of bankrupt companies. Another is that the members of the board and court would all be appointed by President Roosevelt, some of whose appointments, especially his nomination of Thomas R. Amlie to the Interstate Commerce Commission, have hardly indicated that his appointees would favor policies tending to restore essential railway earning power and credit. What is the objective, for example, of those seeking a drastic wiping out of railroad indebtedness and fixed charges? Plainly, it is a drastic reduction of the amount the railways would have to pay in interest, upon the assumption that this would reduce the margin of net earnings they would require, and thereby leave available a larger part of their gross earnings for operating expenses, and especially for wages. We repeat and emphasize again, however, that *there can be no solution of the railroad problem under private ownership excepting by means that will widen the margin of net earnings.*

No Solution Excepting More Net Earnings

The Committee of Six, including three labor leaders, was right in saying, "An average of a billion dollars a year can justifiably be expended in further modernizing and improving their properties, including acquisition of new equipment." But experience demonstrates beyond any question whatever that *this amount cannot be raised and expended for these purposes unless the net earnings (net operating income) are increased to an average of approximately a billion dollars a year.* If net earnings are increased to approximately this amount, there will be no reason for wiping out present bonds and fixed charges as proposed. If net earnings are not increased to approximately this amount, then wiping out present bonds and fixed charges as proposed will simply help to make it impossible to raise the billion dollars a year that the Committee of Six agreed should "be expended in further modernizing and improving their properties, including acquisition of new equipment."

A great deal more knowledge in many quarters—including some railroad quarters—of the economics of railroad development and operation seems greatly needed. Whatever legislation is passed or other measures adopted which will contribute toward widening the margin of railway net earnings will contribute toward solution of the railroad problem. Whatever legislation is passed or other measures adopted that will not contribute toward attainment of this objective will be useless or harmful.

Streamlined Trains as Traffic Builders

The announcement last week of the purchase of new and larger Daylight trains by the Southern Pacific to replace equipment now being operated between San Francisco, Cal., and Los Angeles, is strong evidence of the ability of streamlined trains to develop traffic. When the first trains were planned, 12 non-articulated cars were included in the consist, in the belief that this number would accommodate the maximum traffic that could be anticipated, and with the further thought that the number of cars in the trains could be made less if this anticipated business did not develop. The performance of the trains since March 21, 1937, has greatly exceeded that expectation, and as a result the capacity of the trains just ordered has been increased to 14 cars each.

There has been similar experience on other roads that have pioneered in streamlined train service. The Twin City Zephyrs that the Chicago, Burlington & Quincy placed in service on April 21, 1935, consisting of three cars each, including the power unit, were replaced by a locomotive and six cars on December 18, 1936, and a seventh car was added on September 8, 1937. When the original Hiawathas of the Chicago, Milwaukee, St. Paul & Pacific were planned, they were six-car trains, but from the first run on May 29, 1935, the business required seven or eight cars in a train and the operation of additional sections. On October 11, 1936, these trains were replaced by nine-car trains, while at present as many as 14 cars are being operated. The City of Los Angeles of the Union Pacific-Chicago & North Western and the City of San Francisco of the Union Pacific-Southern Pacific-Chicago & North Western placed in service on May 15, 1936, and June 14, 1936, respectively, were 9-car trains but when the

service was expanded by the addition of two more streamlined trains of the same name in 1937 and 1938 it was necessary to increase the size of the new trains to 14 cars and the original City of Los Angeles to 11 cars. Twelve cars were decided upon as the regular consist of the Twentieth Century Limiteds of the New York Central that were placed in service on June 15, 1938, but actually as many as 18 cars have been included in a single train.

The ability of streamlined trains to create traffic is further demonstrated by the number of passengers carried. The Century and its extra sections handled 27,568 passengers from New York to Chicago during the period from June 15 to November 15, 1938—an increase of 38 per cent over the number carried during the same period the year before the train was streamlined. During the first ten months of operation, the City of Los Angeles carried 13,276 passengers and the City of San Francisco 14,876. Gross revenues of the former were $1,322,607 and of the latter $1,022,536. The Daylight and its extra sections carried 550,793 persons during the period from March 21, 1937, to March 30, 1939, or an average of 747 per day, which is far in excess of the number of persons patronizing the train before it was streamlined. The Hiawatha and its extra sections transported 1,124,858 passengers from May 29, 1935, to February 28, 1939, or an average of 820 per day, a number likewise far in excess of the number carried in the old equipment.

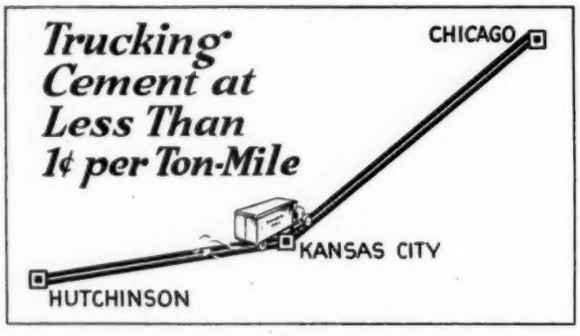
In an effort to ascertain where these passengers came from, questionnaires have been distributed from time to time among the passengers on some of the streamlined trains, and the replies show that at least 20 per cent of the passengers would have used other forms of transportation if the new trains had not been available. On this basis, the new business created by the above trains is substantial, amounting to 149 passengers per day on the Daylight, and 164 per day on the Hiawatha. In each case the created traffic has justified the inauguration of streamlined equipment, and in some instances the patronage has been sufficient to pay the cost of the trains in a few months. For illustration, during the 39 months from June 1, 1935, to August 31, 1938, the total revenues of the Hiawatha and its extra sections, excluding those from dining and tap room cars, amounted to $4,371,450 and expenses, including interest and depreciation, totaled $1,442,015, leaving net earnings of $2,929,435. In contrast, the cost of the two locomotives and 18 cars comprising the train was $894,956.

What Will the Traffic Bear?——9

Trucks have been hauling cement from Hutchinson, Kan., to Chicago—highway distance over 700 miles—for 32 cents per 100 lb., or at less than 1 cent per ton-mile. This is considerably less than half of the average unit cost of truck service.

How do the trucks do it? Very simply—by hauling a westbound load which, thanks to the antiquated rate structure, gives them such a large profit above operating costs that they could even return empty and still be ahead of the game.

So, class rates which are far higher than truck operating costs are a two-edged sword against the



railroads. Such rates invite the trucks to take a profitable outbound load away from the railroads. And, once this load has been moved, the trucker has enough profit in his pocket so he can afford to pick up a return load at whatever rate he has to make to get it.

There have been published over 7,000 below-cost truck rates in Central Freight Association Territory alone—not one of which the trucks could afford to quote if the class rate structure were not giving them extra-fancy profits on their outbound haul. Multiply these 7,000 rates in Central territory by the number of territories, and one begins to see the **inroads the trucks are making in hauling low-grade commodities.** Yet they would not be doing a nickel's worth of business on these low-rated return loads, if the railroads were not presenting them with outbound loads at such high profits that they can even afford to return home empty.

Not alone the railroads, but also the shippers (who ought to be protecting the interests of the ultimate consumer), seem content to sit idly by and let this thing go on. The majority of the Interstate Commerce Commission and its technical advisers also seem to be too tangled up in red tape to recognize the situation in its true gravity. But the critics of the ruinous status quo are rapidly growing in number, and prominent among them is Commissioner Mahaffie. In his dissent in the Western-Southern Class rates decision on March 29, he said:

"I cannot concur in the findings of the majority here. It is necessary, of course, to patch up this old and out-moded structure so long as the carriers and the majority of the Commission try to keep it in force. I have no objection in principle to attempts to improve the adjustment, but in my judgment it should be completely remade."

Railway Inventories Down Almost 70 Million Dollars

Liquidation of surplus increases dependence on purchases for needs — 42,000,000 ties laid — $37,000,000 from scrap

FOLLOWING a precedent of several years, the *Railway Age* has completed a detailed analysis of special reports from practically every Class I railroad and several switching and terminal companies, showing the more important divisions of their inventories on January 1 of this year and also the consumption (not purchases) of the corresponding materials in the previous 12 months. The reports have again been segregated by regions and the figures converted to show the percentage change from the previous year and the relation of inventories to consumption as well as to operating expenses and, for the third consecutive year, the analyses have been enlarged to segregate old rail from new rail and to include quantity data.

The analysis shows that railroads in all parts of the country utilized every opportunity during 1938 to dispose of the materials that piled up in 1936 and 1937 as a combined result of a period of more active buying, followed by an unexpectedly sharp and prolonged recession of business and that efforts in this direction, though failing to re-establish a high rate of stock turn over, were highly effective in reducing the investment in unapplied materials.

A $322,000,000 Stock

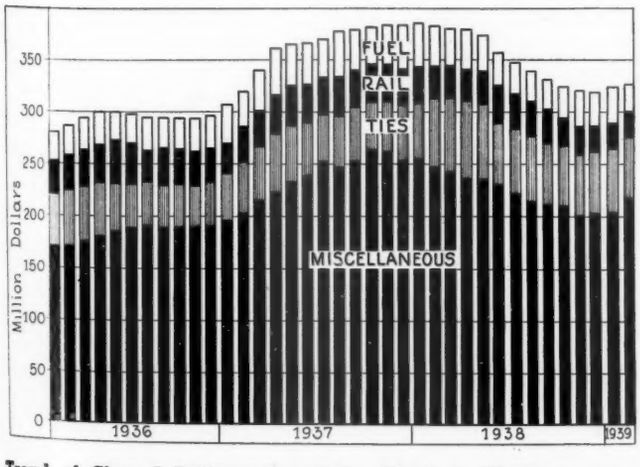
Materials on the Class I railroads, the switching and terminal companies and other steam roads in the aggregate on January 1, 1939, totaled approximately $322,000,000. While this total was increased somewhat in January and February, the total on January 1 was a reduction of $68,371,000 or 17.5 per cent from the money tied up in materials on all the railroads on January 1, 1938 and, aside from being the largest reduction made in any 12 months since 1921 and 1922 when post-war inventories were being absorbed, it reflects the liquidation of more than two-thirds of the $100,000,000 increase in unapplied materials which occurred between January 1, 1936, and this time last year. Since railroads carry unapplied materials at cost until used, this reduction in values reflects, for all practical purposes, a corresponding reduction in volume rather than a mere write off of values.

The total inventory on January 1 was equivalent to $1,340 per mile of road and was equal to 8.9 per cent of the operating revenues of the previous 12 months and 11.6 per cent of the corresponding operating expenses, as compared with an inventory of $1,640 per mile, 9.3 per cent of revenues and 12.3 per cent of operating expenses in the previous year. The investment in unapplied materials on January 1 was less by $445,000,000 or 58 per cent than the total on January 1, 1921, when the total at prices then prevailing was $767,367,000.

Materials in Stock, Class I Railroads*

1937	Fuel (000)	Rail, New and S. H. (000)	Cross-ties (000)	Stores Stock (000)	Scrap (000)	Total (000)
Jan. 1.....	$27,390	$31,817	$195,101	$9,996	$7,198	$307,575
Feb. 1.....	29,039	32,778	199,970	8,899	5,805	320,361
Mar. 1.....	31,669	35,990	211,383	8,604	5,955	340,206
Apr. 1.....	37,729	38,316	221,094	8,888	6,079	361,451
May 1.....	32,693	38,342	230,609	9,103	6,172	365,470
June 1.....	31,735	37,644	236,232	9,781	6,857	366,600
July 1.....	29,185	35,329	246,025	10,592	7,857	371,558
Aug. 1.....	32,652	37,043	244,638	10,463	7,121	374,832
Sept. 1.....	32,619	35,819	250,206	10,187	6,810	380,426
Oct. 1.....	28,906	31,870	261,740	10,706	7,757	383,794
Nov. 1.....	28,411	31,769	201,856	9,300	8,552	284,376
Dec. 1.....	33,473	31,022	248,931	10,989	7,241	383,662
1938						
Jan. 1.....	30,499	30,333	252,104	13,106	9,496	385,057
Feb. 1.....	31,453	31,820	242,328	11,634	8,075	383,388
Mar. 1.....	28,822	32,238	240,790	11,642	7,979	382,050
Apr. 1.....	27,847	34,644	233,396	11,214	8,098	380,381
May 1.....	25,223	34,076	232,747	10,464	7,336	374,093
June 1.....	22,391	33,504	230,902	12,127	9,396	363,944
July 1.....	22,568	33,007	226,370	10,042	9,276	355,258
Aug. 1.....	20,665	32,238	219,735	11,855	8,944	345,393
Sept. 1.....	23,192	30,451	210,564	10,369	6,271	337,511
Oct. 1.....	23,376	28,934	207,791	10,818	5,911	329,887
Nov. 1.....	20,802	27,280	207,814	11,282	7,393	322,797
Dec. 1.....	24,311	27,544	194,137	11,882	6,483	318,624
1939						
Jan. 1.....	22,660	24,733	199,477	11,200	7,134	317,561
Feb. 1.....	25,942	25,027	198,528	11,023	6,347	323,158
Mar. 1.....	20,415	21,649	217,381	15,837	14,599	334,851

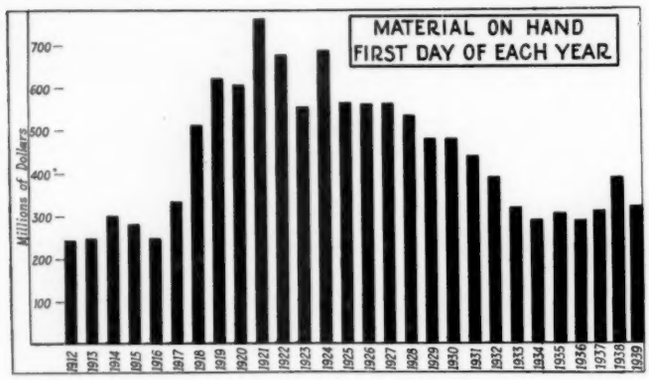
* Before adjustments to harmonize values of each class of material with annual inventories—Correct for relative values month to month.



Trend of Class I Railway Inventories Month to Month, January, 1936, to March 1, 1939

Less Income from Scrap Sales

Class I railroads, according to the analysis, used $760,875,000 of materials and supplies in 1938, as compared with $1,051,017,000 in 1937 and $915,394,000 in 1936 and they obtained $36,929,000 from the sale of railroad scrap last year as compared with approximately $68,552,000 in 1937 and approximately $57,307,000 in 1936. Total disbursements in 1938 included approximately $246,563,000 of coal and fuel oil, as compared with $286,071,000 in 1937; $42,420,000 of new and relay rail,



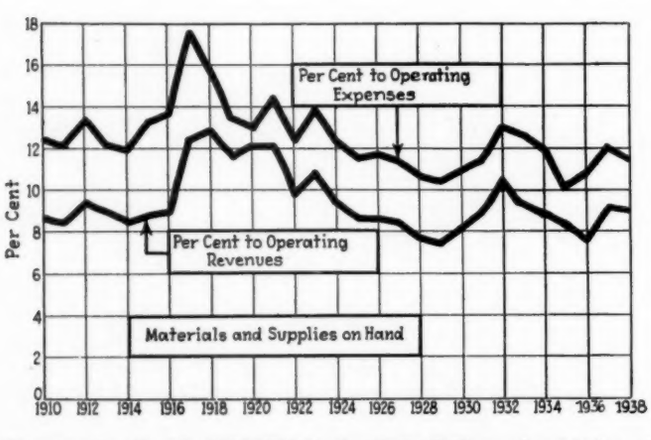
Total Value of Materials and Supplies on Hand on All Railroads Annually from 1912-1939

as compared with $66,218,000 in 1937; $50,889,000 of cross ties, as compared with $57,111,000 in 1937 and $421,002,000 of storehouse and miscellaneous material, as compared with $641,617,000 in 1937. Material used includes second hand and shop manufactured material as well as newly purchased materials. Based on the maximum figures available, the consumption of material in 1938 included $26,095,000, or approximately 620,000 tons, of new rail, as compared with $42,813,000 in 1937, and $16,364,000 of relay rail as compared with $23,405,000 in 1936. The railroads laid approximately 42,000,000 cross ties and sold approximately 255,000 tons of scrap.

Stock balances of the Class I railroads, excluding other lines, at the close of 1938 totaled $317,562,000, as compared with $385,912,000 at the close of 1937. The total on January 1, 1939, included $23,769,000 of coal and fuel oil, as compared with $30,812,000 on January 1, 1938; $26,969,000 of new and second-hand rail, as compared with $31,123,000 a year previous; $54,716,000 of cross ties, as compared with $54,622,000 a year previous, and $200,566,000 of miscellaneous materials, as compared with $256,998,000 a year previous, while the inventory of unsold scrap totaled $11,542,000, as compared with $12,357,000 on January 1, 1938. The rail inventory included approximately $11,965,000, or 285,000 tons, of new rail and $15,003,000 of old rail which includes rail on rests for track protection.

5.8 Months' Supply

Based on the average month's consumption of materials in 1938 fuel stocks on January 1 represented a



Comparative Trends 1910-1939 in the Ratio Railway Inventories at the Close of Each Year to the Corresponding Annual Operating Expenses and Annual Operating Revenues

34 days' supply, as compared with a 39-day supply at the close of 1937 and a 36-day supply at the close of 1936. Cross ties on hand January 1 were equivalent to a 12.9 months' supply, as compared with a 11.5 months' supply in 1937 and an 8.9 months' supply in 1936. Store stocks on January 1 were equivalent to a 5.8 months' supply, as compared with a 4.8 months' supply a year previous and a 4.4 months' supply in 1936. Stocks of all materials and supplies in the hands of railroads on January 1, when related to the average month's consumption during 1938, indicated a 4.8 months' supply, as compared with a 4.2 months' supply in 1937 and 4.0 months in 1936. Materials in stock on January 1 would reflect a smaller stock in terms of consumption than has been reported if the rate of consumption in the last six months of 1938 only were considered and a still smaller stock would be indicated on the basis of the increased rate at which materials are being consumed at the present time.

Month-to-month statistics, while somewhat at variance with statistics developed from the more complete annual information, show for the past three-year period, that fuel stocks on January 1 had declined approximately $15,000,000 or 40 per cent from April 1, 1937, when they were highest, and were reduced by approximately $2,000,000 since January 1, 1938. The inventory of new and old rail on January 1, while only slightly less than on January 1, 1938, was less by approximately

Materials on Hand, December 31, 1938, Class I Railroads

	Fuel (000)	Days' Stock	Cross-ties (000)	Months' Stock	Rail, New & S. H. (000)	Months' Stock
1929	$40,000	32	$95,000	8.1	$45,000	3.9
1930	28,200	40	101,200	10.9	44,700	4.9
1931	23,600	31	86,150	11.7	49,250	8.5
1932	20,500	36	67,200	14.8	48,100	18.0
1933	17,950	37	50,950	13.0	33,600	14.0
1934	19,930	34	47,297	11.0	36,885	13.0
1935	22,218	37	42,020	9.9	34,275	11.7
1936	26,137	36	40,542	8.9	31,226	6.5
1937	30,812	39	54,622	11.5	31,123	5.6
1938	23,769	34	54,716	12.9	26,969	7.6

	Miscellaneous (000)	Months' Stock	Scrap (000)	Months' Stock	Total (000)	Months' Stock
1929	$292,000	3.5			$472,000	3.8
1930	246,500	3.8	$10,300		430,900	3.8
1931	203,869	4.4	13,200		374,331	4.5
1932	170,000	5.5	12,800		316,800	5.9
1933	178,091	5.7	10,700		291,291	5.8
1934	181,455	5.0	11,898		297,465	4.6
1935	171,920	4.7	9,427	3.1	279,926	4.3
1936	199,743	4.4	9,926	2.1	307,574	4.0
1937	256,988	4.8	12,356	2.1	385,912	4.2
1938	200,566	5.8	11,542	3.7	317,562	4.8

Days' or months' stock based on average consumption per day or month during previous year.

$13,500,000 or 35 per cent than on April 1, 1937, and a further decline of approximately $3,000,000 since January 1, 1938 is indicated. Tie stocks have changed the least but the inventory on March 1 of this year, which was about the same as on January 1, showed a decline of approximately $13,800,000 or over 36 per cent from April 1, 1938, when cross tie stocks were at their highest for the three-year period. From October 1, 1937, when store stocks were highest, there was a decline of approximately $62,000,000 or 23 per cent to December 1, 1938, since which time some increase has developed with the delivery of material for spring track work.

Results Analyzed

The annual inventories and annual consumption of materials on different roads are presented in detail in a table. The inventory and consumption figures are those reported by the railroads, except where otherwise noted. The per cent changes in inventory and consumption

were determined by comparing the figures reported for 1938 with those reported the year previous. Turn-over figures were calculated by dividing the consumption for the year by 12 to obtain a theoretical average monthly consumption and dividing the result into the stock balance.

In computing these figures, it was recognized that

Materials and Supplies on Hand, United States Railroads

	Amount	Reduction	Per cent of Op. Rev.	Per cent of Op. Exp.
June 30, 1911....	$244,932,000	$	8.6	12.4
June 30, 1912....	246,790,000	+ 1,858,000	8.5	12.1
June 30, 1913....	300,601,000	+ 53,811,000	9.4	12.4
June 30, 1914....	278,940,000	21,661,000	8.9	12.2
June 30, 1915....	248,888,000	30,052,000	8.4	11.9
Dec. 31, 1916....	333,361,000	+ 84,473,000	9.0	13.7
Dec. 31, 1917....	514,051,000	+180,690,000	12.5	17.6
Dec. 31, 1918....	641,759,000	+127,708,000	12.9	15.8
Dec. 31, 1919....	608,527,000	33,232,000	11.6	13.5
Dec. 31, 1920....	767,267,000	+158,740,000	12.1	12.9
Dec. 31, 1921....	676,125,000	91,142,000	12.0	14.4
Dec. 31, 1922....	556,260,000	119,865,000	9.7	12.3
Dec. 31, 1923....	693,078,000	+136,818,000	10.8	13.9
Dec. 31, 1924....	569,690,000	123,388,000	9.4	12.3
Dec. 31, 1925....	535,126,000	34,564,000	8.6	11.5
Dec. 31, 1926....	561,007,000	+ 25,881,000	8.6	11.8
Dec. 31, 1927....	532,063,000	28,944,000	8.5	11.4
Dec. 31, 1928....	478,625,000	53,438,000	7.7	10.6
Dec. 31, 1929....	477,051,000	1,574,000	7.5	10.4
Dec. 31, 1930....	437,375,000	39,676,000	8.2	11.0
Dec. 31, 1931....	379,992,000	57,383,000	8.9	11.5
Dec. 31, 1932....	321,595,000	58,397,000	10.8	13.1
Dec. 31, 1933....	296,069,000	25,526,000	9.3	12.9
Dec. 31, 1934....	302,346,000	+ 6,277,000	9.1	12.2
Dec. 31, 1935....	290,751,000	11,595,000	8.2	10.8
Dec. 31, 1936....	311,063,000	+ 20,312,000	7.6	10.5
Dec. 31, 1937....	390,371,000	+ 79,303,000	9.3	12.3
Dec. 31, 1938....	322,000,000	− 68,371,000	8.9	11.6

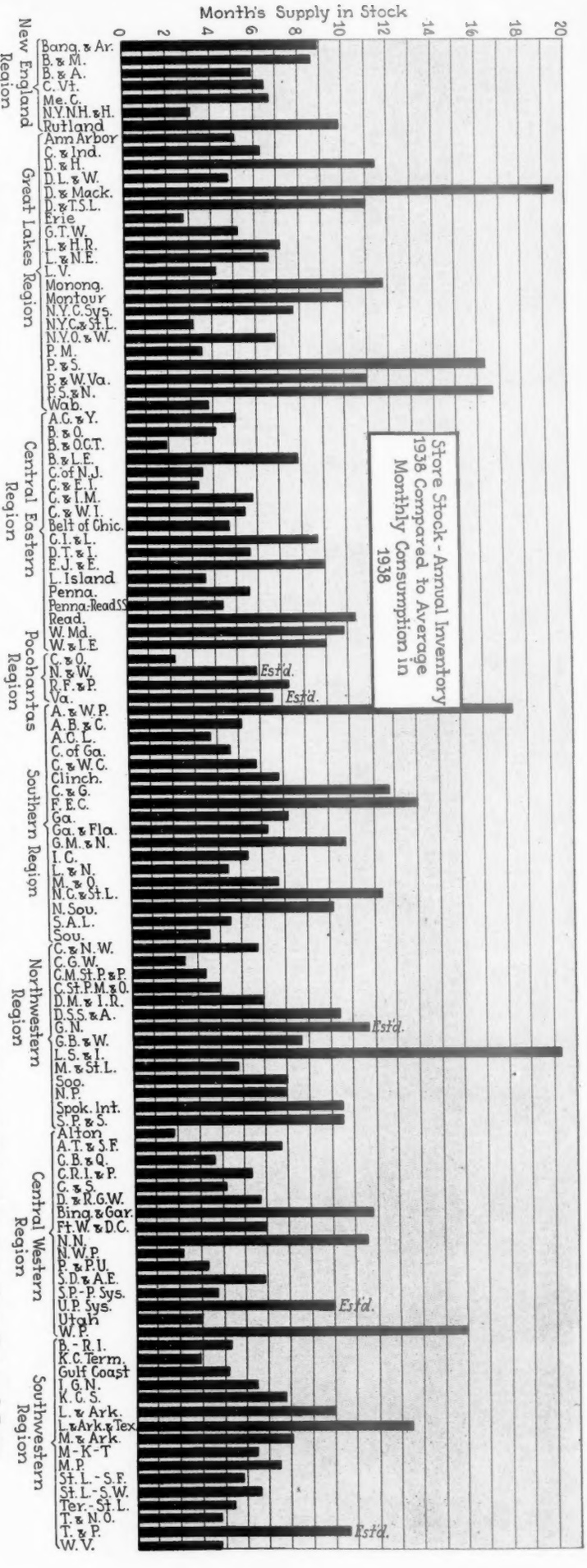
comparisons between inventories of different railroads are objectionable from some standpoints. Accounting practices are not wholly uniform because of differences in the manner of interpreting accounting rules of the I. C. C. Both inventory and consumption figures are also influenced by differences in the practice of valuing second hand and reclaimed materials and there are also differences in the practice of charging material out of stock and in disposing of unserviceable materials which are included in stock balances. Inactive stock on railroads at the present time appears to be 12.9 per cent of the total inventory.

While these irregularities impair, they do not destroy the value of the comparisons. In the present analysis such comparisons are facilitated by separating those classes of material which are governed by different policies and conditions or which are controlled by different departments. Uniformity has also been promoted by inventory figures that include all unapplied materials, including ties at treating plants, and specifying that all materials reported as "used" be restricted to the value of materials issued to closed accounts. In practically all cases the total inventories reported by each railroad correspond to the inventories reported to the Interstate Commerce Commission in General Balance Sheet Account No. 716.

Reduction in All Directions

Fuel reported on hand at the close of 1938 showed reductions from the previous annual inventory on 98 roads and increases on 22, according to the analysis. The consumption of fuel during 1938 increased on 4 roads. Stocks of new rail declined on 92 roads and increased on 18 roads, while the consumption of new rail was less on 86 roads and more on 24 roads. Year-end stocks of crossties showed declines on 64 roads and increases on 56 roads and cross ties insertions for the year 1938 shows increases on 37 roads and reductions on 83 roads. Stocks of miscellaneous material in the hands of

Stocks of Material Held by Class I Railroads December 31, 1938, in Relation to Average Monthly Consumption in 1938 — Excludes Fuel, Rail, Cross Ties and Scrap



Materials and Supplies Used and

Road	Fuel — On Hand Dec. 31	Fuel — On Hand Dec. Day's % stock	Fuel — Used 1938	Fuel — Used Dec. %	Rail—New and Old — On Hand Dec. 31 New	Rail—New and Old — On Hand Dec. New %	Rail—New and Old — Used 1938 New	Rail—New and Old — Used Dec. New %	Rail—New and Old — On Hand Dec. 31 Old	Rail—New and Old — On Hand Dec. Old %	Rail—New and Old — Used 1938 Old	Crossties — On Hand Dec. 31	Crossties — On Hand Dec. Month's % stock
Bangor & Aroostook	$138,066	21 105	$473,359	1	$28,428	20	$139,626	+11	$28,162	8	$14,144	$160,140	+73 21
Boston & Albany	96,087	35 16	2,111,385	8	7,951	75	156,615	+130	109,193	+112	47,677	127,039	+1 20
Boston & Maine	156,118	40 15	3,652,045	3	17,992	16	3,747	+46	206,688	1	77,383	751,281	23 25
Central Vermont	28,912	69 17	594,935	21	13,572	+2	14,687	+57	24,765	18	11,166	136,875	+48 21
Maine Central	45,525	23 12	1,373,791	+54	78,842	2	1,718	+77	81,695	10	18,656	186,822	+35 6.5
New York, New Haven & Hartf.	626,359	+1 53	4,306,374	10	58,064	39	387,077	49	198,901	39	270,724	795,510	+23 22.6
Rutland	34,947	46 32	392,939*	4	33,497	9	2,940*	90	Not separated			28,042	57 5.4
NEW ENGLAND REGION	1,126,014	— 31	12,904,828	—	238,376	..	706,410	..	649,404	—	439,750	2,185,709	— 18.3
Ann Arbor	8,746	+23 7	420,816	13	328	+90	1,055	..	7,312	53	13,283	16,630	66 3.5
Cambria & Indiana	576	41 7	29,790	14	438	+210	3,059	71	3,335	+12	263	2,330	71 9.2
Delaware & Hudson	291,104	55 57	1,861,416	12	295,722	54	648	100	50,043	31	50,292	478,010	+10 20.1
Delaware, Lackawanna & Western	134,532	+9 11	4,283,049	7	2,616	88	77,506	83	94,212	15	93,228	270,150	+1 13.1
Detroit & Mackinac	5,460	15 30	64,344	5	None	..	None	..	14,256	+15	7,727	16,873	39 8.5
Detroit & Toledo Shore	6,829	1 21	116,663	27	347	..	.....	..	5,363	8	850	27,789	+27 15.1
Erie	154,561	40 11	5,122,525	12	24,695	53	707,092	59	175,852	+1	341,832	676,371	+15 12.3
Grand Trunk Western	252,567	8 53	1,726,942	20	25,561	28	10,143	95	204,304	16	57,402	72,907	55 2.0
Lehigh & Hudson River	4,304	57 14	110,653	24	21,320	11	2,550	+85	1,974	14	1,037	8,123	36 4.0
Lehigh & New England	83,437	+15 13	228,621	19	8,577	70	17,174	62	37,464	13	31,276	42,824	+2 19.0
Lehigh Valley	178,675	+5 18	3,666,318	18	111,807	15	18,849	50	93,360	+46	53,169	335,179	+9 26.5
Monongahela	229	.. ..	104,141	19	2,464	24	746	98	7,056	24	2,896	12,333	+35 3.5
Montour	1,294	27 55	83,771	28	9,951	11	11,578	+2	1,539	+100	1,121	600	15 ....
N. Y. C. R. R.	1,109,015	15 24	16,606,860	15	1,452,898	26	2,612,412	49	Not separated			4,388,607	1 17.7
N. Y. C. & St. L.	145,843	27 18	2,892,291	8	25,790	+27	183,025	64	109,902	52	199,079	492,103	+140 16.0
New York, Ontario & Western	30,172	47 15	713,418	+3	19,467	48	26,150	+9	Not separated			13,481	80 3.0
Pere Marquette	196,754	20 30	2,353,546	16	7,887	23	160,399	57	98,156	+1	124,278	492,372	+17 7.9
Pittsburg & Shawmut	2,064	42 15	33,671	16	42	32	.....	..	7,766	15	886	21,777	17 6.7
Pittsburgh & West Virginia	5,649	58 16	129,637	21	17,925	48	16,080	64	18,718	21	10,293	13,757	+3 1.7
Pittsburg, Shawmut & Nor	1,062	44 13	54,690	14	.....	..	223	..	14,322	27	17,927	7,393	+120 4.2
Wabash	115,777	21 16	2,606,881	10	49,698	75	152,431	82	131,201	41	131,311	793,314	+87 10.8
GREAT LAKES REGION	2,728,650	.. 23	43,210,043	..	2,077,533	..	4,001,120	..	1,076,735	..	1,138,150	8,182,923	— 13.5
Akron, Canton & Young	1,887	71 7	91,462	12	4,936	+11	367	65	5,364	21	2,280	7,395	+3 2.5
Alton & Southern	487	98 17	102,149	3	4,379	72	21,488	30	3,778	+7	7,871	1,932	11 2.0
Baltimore & Ohio	310,685	33 13	8,326,267	17	602,682	43	798,942	3	169,501	+6	367,380	804,136	40 8.1
Balt. & Ohio Chi. Term	12,337	58 10	420,513	24	5,095	23	1,655	77	14,063	58	21,606	24,363	19 9.5
Belt Ry. of Chicago	18,278	83 14	477,281	21	14,366	27	50,857	15	40,643	32	73,225	63,591	+16 4.0
Bessemer & Lake Erie	11,565	84 16	267,913	35	34,327	2	123,648	28	52,042	+100	24,602	59,522	+420 3.1
Central of New Jersey	95,032	45 12	2,840,559	9	94,981	19	131,917	+18	55,964	+8	78,734	241,121	+27 18.2
Chicago & Eastern Ill.	22,851	53 10	807,254	19	15,387	17	95,255	68	152,604	31	84,447	219,758	1 13.1
Chicago & Illinois Mid.	3,507	12 8	152,552	5	5,193	20	26,213	38	8,191	+80	8,882	14,574	+50 6.5
Chicago & Western Ind.	4,744	76 12	137,240	31	18,733	54	24,495	43	32,967	+2	16,896	36,273	+7 7.5
Chicago, Ind. & Louis.	18,527	58 14	461,101	15	Not separated				83,585	..	45,142	132,119	27 9.3
Detroit, Toledo & Iron	12,459	40 23	190,436	34	21,397	60	7,371	47	29,316	30	26,805	114,708	12 15.4
Elgin, Joliet & Eastern	27,427	+12 20	481,208	53	68,790	+380	17,819	77	11,892	15	18,778	135,698	+180 11.1
Illinois Terminal	1,701	.. 8	77,663	..	1,001	..	6,632	..	8,511	..	31,004	60,576	.. 11.6
Long Island	60,263	+6 25	840,090	1	107,056	37	65,932	53	25,829	23	44,227	46,847	+110 4.1
Pennsylvania	792,641	50 16	17,830,599	21	2,015,331	21	610,475	75	409,216	36	945,249	4,370,132	4 22.0
Penna.-Read. S. S.	12,942	+38 11	426,826	1	1,240	63	2,405	86	28,964	35	26,877	14,604	79 15.5
Reading	98,236	61 8	4,171,217	15	350,507	2	9,297	10	173,135	9	29,618	612,299	+36 31.8
Western Maryland	52,426	45 23	817,335	15	11,575	+85	135,028	42	11,675	25	30,231	496,714	+4 24.6
Wheeling & Lake Erie	30,123	47 18	573,348	30	35,575	34	17,969	84	75,034	+300	11,054	151,304	21 16.2
CENTRAL EASTERN REGION	1,588,118	.. 15	39,493,013	..	3,412,551	..	2,147,765	..	1,392,274	..	1,890,908	7,607,666	.. 16.1
Chesapeake & Ohio	384,309	+1 32	4,313,158	13	12,231	42	1,246,450	14	290,442	15	687,318	711,642	+6 13.1
Norfolk & Western	191,209	30 19	3,514,269*	15	524,024	+290	879,484*	43	411,646	+21	.....	823,681	+7 ....
Richmond, Fred. & Pot.	47,833	33 21	803,460	2	12,078	0	2,343	+34	9,713	13	5,525	148,692	+3 11.0
Virginian	16,168	+4 9	607,134	5	95,436	+74	187,082	+20	58,733	38	116,310	421,228	+52 14.1
POCAHONTAS REGION	639,519	.. 25	9,238,021	..	643,769	..	2,315,359	..	770,534	..	809,153	2,105,243	.. 21.0
Ala., Tenn. & Northern													
Atlanta & West Point	45,734	53 25	650,923	2	17,826	+460	8,736	94	20,231	50	24,428	80,980	27 6.8
Atlanta, Birm. & Coast	21,873	48 32	247,058	10	2,186	..	19,122	..	17,336	+80	4,094	77,018	20 7.9
Atlantic Coast Line	918,889	13 81	4,085,488	3	27,308	15	1,021,780	+170	592,118	+60	362,708	742,205	+60 9.5
Central of Georgia	53,235	13 17	1,143,093	13	4,041	88	28,519	90	29,561	65	83,189	332,375	+70 11.3
Charleston & W. Carol.	7,553	30 15	179,410	13	1,708	+2	25,171	+5	12,257	+5	9,457	33,634	+50 5.9
Clinchfield	12,577	+5 16	282,993	10	86,866	+800	57,706	+18	6,752	3	575	117,392	3 13.5
Columbus & Greenville	1,134	59 3	92,502	5	529	0	.....	..	7,584	+40	6,337	3,365	71 10.2
Florida East Coast	155,941	21 70	805,068	6	25,873	8	2,153	52	298,696	10	25,728	43,904	+300 3.3
Georgia & Florida	3,907	70 13	106,184	15	None	..	None	..	10,206	7	4,312	1,678	87 .4
Gulf, Mobile & Northern	29,723	+3 37	285,847	27	1,600	48	1,357	6	61,103	19	34,143	60,767	14 2.9
Illinois Central Sys.	358,222	39 17	7,332,564	9	24,642	9	355,431	35	337,444	1	276,013	592,317	38 4.5
Louisville & Nashville	261,769	56 20	4,469,990	15	482,016	..	861,463	+11	370,544	+38	387,295	1,695,108	+5 18.9
Mississippi Central	2,677	77 24	39,108	23	None	..	None	..	8,189	46	18,609*	46,800	22 15.4
Mobile & Ohio	38,895	26 21	653,752	+6	96,567	2	34,184	37	29,408	+10	22,376	105,132	+55 4.3
Nashville, Chat. & St. L.	143,533	29 32	993,563	+2	63,921	+180	191,701	25	34,040	28	33,210	253,233	3 13.3
Norfolk Southern	16,580	53 23	255,960	12	None	..	None	..	22,114	7	4,983	50,313	44 3.4
Seaboard Air Line	327,664	32 37	3,202,636	1	74,600	+120	552,021	1	238,646	23	440,729	438,986	18 4.9
Southern	394,150	32 20	7,240,563	8	27,560	43	726,921	27	180,894	23	476,859	1,424,385	+30 6.3
Tennessee Central	2,408	80 7	125,421	5	Not separated		30,965	4	Not separated		7,178	7,135	+20 1.7
SOUTHERN REGION	2,796,464	— —	32,192,125	..	937,243	..	3,917,230	..	2,277,123	..	2,222,226	6,107,227	.. ....
Butte, Anaconda & Pac.	1,071	+230 117	3,308	79	16,819	+130	3,246	+130	777	65	3,288	13,353	+9 4.5
Chicago & North Western	462,336	31 30	5,509,425	14	213,043	4	245,052	85	771,618	30	515,883	2,699,242	3 18.5
Chicago Great Western	28,751	31 7	1,411,840	15	1,535	96	237,521	49	40,346	16	178,413	45,056	49 14.3
Chi., Milw., St. P. & P.	420,036	44 23	6,527,484	10	287,870	62	830,150	55	Not separated			2,390,999	13 16.3
Chi., St. P., Minn. & O.	109,558	16 22	1,737,211	30	110,018	10	35,047	82	140,004	24	73,838	424,715	+11 12.6
Duluth, Missabe & I. R.	316,761	49 21	540,023	49	32,326	+89	100,827	50	59,358	+2	45,673	375,779	+77 42.0
Duluth, S. Shore & Atl.	4,947	79 8	211,444	23	639	57	.....	..	32,787	14	6,126	50,791	62 9.7
Duluth, Winnipeg & Pac.	1,106	+3 3	107,577	18	122,116	7	9,374	..	22,895	+7	4,165	30,577	7 7.3
Great Northern	1,621,570	+19 9	6,264,331	18	.....	..	244,569	75	640,598	8	294,137	1,151,409	+7 13.6
Green Bay & Western	7,069	33 14	173,255	11	2,276	17	8,749	78	11,097	+103	9,989	30,712	7 3.4
Lake Superior & Ish.	60,113	34 32	67,178	45	144	39	91	..	51,570	7	4,910	24,528	+230 11.4
Minneapolis & St. Louis	29,478	+2 26	413,198	13	1,750	97	74,311	+900	78,274	27	54,188	102,781	45 3.7
Minn., St. P. & S. S. M.	159,432	17 28	2,072,541	10	7,574	53	199,633	26	132,968	+4	99,458	414,472	+50 8.1
Northern Pacific	258,904	17 21	4,468,125	+1	283,653	+160	1,191,567	+170	504,347	+52	469,011	1,737,726	+3 14.1
Spokane International	4,399	+10 32	48,860	10	233	18	.....	..	15,669	1	2,552	10,711	+30 4.4
Spokane, Port. & Seattle	64,288	11 39	599,256	19	2,488	14	798	+30	44,206	10	24,586	127,810	30 6.1
NORTHWESTERN REGION	3,549,819	— —	30,155,056	..	1,082,484	..	3,180,935	..	2,547,014	..	1,786,217	9,630,661	.. ....
Alton	28,727	43 11	930,331	20	15,709	67	32,050	39	60,111	37	35,707	183,189	20 4.0
A. T. & S. F. lines	3,141,958	16 8	13,615,915	13	2,698,054	22	1,772,631	65	Not separated			4,678,258	+10 25.6
Bingham & Garfield	.....	.. ..	20,178	22	2,285	41	1,160	98	1,466	77	3,426	14,326	+160 7.3
Chicago, Burl. & Quincy	479,589	+300 38	4,676,535	16	687,479	+2	759,187	39	Not separated		297,278	2,589,459	14 12.3
Chicago, R. I. & P.	338,830	5 21	5,793,555	14	322,787	13	2,221,564	31	Not separated			1,304,343	+6 14.1
Colorado & Southern	36,353	58 26	503,181	21	3,270	30	2,832	1	65,879	38	29,547	78,585	+2 10.4
Denver & Rio Grande West	68,212	+1 13	1,852,453	19	383,141	26	241,702	53	312,552	+1	115,239	323,155	26 9.5
Fort Worth & Denver City	137,881	+45 11	459,317	13	4,687	29	1,502	+10	26,330	3	4,942	13,390	+55 1.5
Nevada Northern	3,561	48 16	77,665	15	4,974	25	1,594	+4	4,636	15	2,557	17,485	30 7.6
Northwestern Pacific	36,429	10 38	344,280	9	527	82	2,724	..	49,263	32	27,648	43,844	+180 13.8
Peoria & Pekin Union	5,876	33 24	86,567	28	.....	93	506	95	7,655	58	7,813	865	83 9.4
San Diego & Ariz. East	1,634	38 75	778,924	14	1,345	51	1,368	7	6,201	7	2,076	8,991	+21 3.2
Southern Pacific	1,435,323	47 32	16,014,780	23	210,509	26	3,512,832	+190	797,198	+110	2,524,596	1,069,216	10 7.7
Union Pacific System	1,195,737	14 37	11,682,259*	10	1,404,590	48	1,316,796*	43	Not separated			3,209,305	12 29.0
Utah	1,648	26 18	32,224	31	29,744	1	.....	..	14,758	3	598	58,601	9 50.5
Western Pacific	118,640	10 33	1,264,654	19	77,294	32	1,072,466	2	181,814	53	64,613	264,175	24 7.3
CENTRAL WESTERN REGION	7,030,398	.. ..	57,432,818	..	5,846,447	..	10,940,914	..	1,527,963	..	3,115,950	13,857,167	.. ....
Burlington-Rock Island	1,132	32 6	62,771	35	1,353	16	756	..	2,405	+22	66	42,747	+100 3.9
Gulf Coast Lines	215,555	17 95	820,106	13	15,304	38	133,252	+40	126,904	3	96,028	76,902	+24 3.2
International-Great Nor.	291,676	34 105	987,219	8	9,647	80	126,972	14	124,681	+2	49,656	111,949	41 8.4
Kansas City Southern	370,644	+30 ..	.....	..	8,213	90	.....	..	99,199	+2	.....	315,820	3 ....
Kansas City Term'l	10,566	29 24	161,785	25	3,238	72	8,890	12	.....	..	2,647	38,796	+20 17.6
Louisiana & Arkansas	295,120	+150 ..	349,962	..	839	54	399	85	23,799	64	22,947	55,412	48 5.0
Missouri & Arkansas	1,383	33 6	76,913	18	None	..	None	..	316	17	6,173	1,291	62 2.8
Missouri-Kansas-Texas	71,741	33 13	1,964,023	15	57,194	29	135,917	43	Not separated			396,440	23 8.4
Missouri Pacific	714,101	+66 45	5,722,520	1	40,779	+42	1,000,944	14	230,754	+14	379,196	1,114,822	22 10.2
St. Louis-San Francisco	202,234	46 20	3,598,864	19	408,246	7	695,560	24	Not separated			1,404,075	8 11.7
St. Louis Southwestern	444,198	17 138	1,159,093	16	72,035	+1	41,712	83	113,212	2	32,359	273,976	15 7.8
Term'l of St. L.	16,985	41 10	580,073	23	23,647	66	45,981	2	3,905	14	15,685	15,748	19 3.8
Texas & New Orleans	621,107	26 78	2,866,350	14	71,017	11	448,054	+30	488,831	18	159,360	694,384	38 11.3
Texas & Pacific	973,194	7 21	1,671,840*	12	462,804	+32	82,426*	73	Not separated			310,065	15 34.0
Wichita Falls & Southern	996	44 14	24,582	10	None	..	None	..	1,193	..	302	3,335	13 2.0
Wichita Valley	1,478	+29 16	32,086	5	None	..	None	..	1,660	2	2,495	4,908	.. 2.7
SOUTHWESTERN REGION	4,232,110	.. ..	20,078,187	..	1,184,316	..	2,720,863	..	1,216,859	..	766,914	4,860,670	.. ....
Total Class I Equalized	$23,768,873	.. 34	$246,563,842	..	$11,965,014	..	$26,095,449	..	$15,003,867	..	$16,324,374	$54,716,309	.. 12.9

*Estimated.

Carried by Class I Railroads in 1938

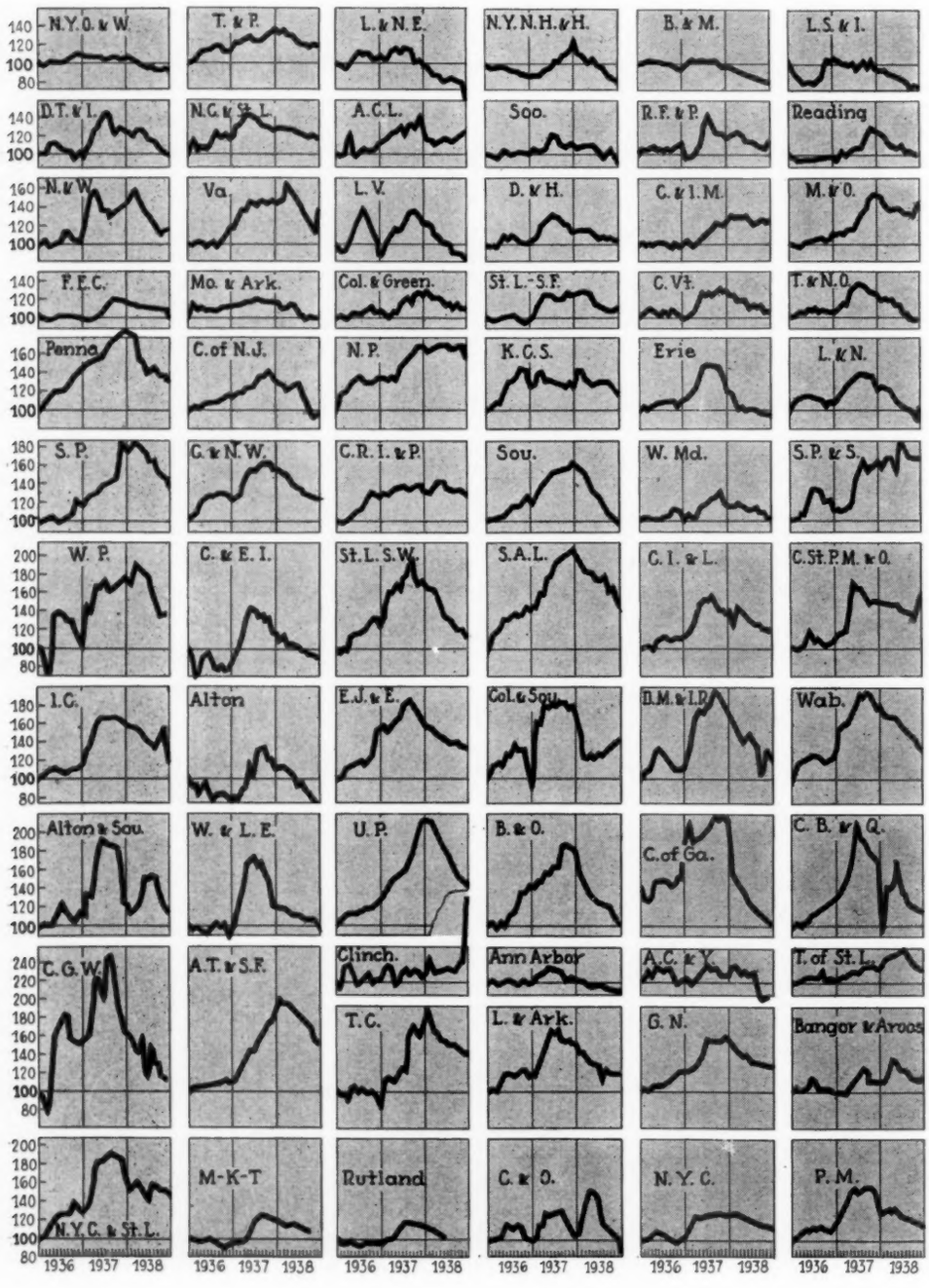
Used 1938	Used Dec. %	Stores Stock — On Hand Dec. 31	On Hand Dec. %	On Hand Months' stock	Used 1938	Used Dec. %	Total — Less Scrap — On Hand Dec. 31	On Hand Dec. %	On Hand Months' stock	Used 1938	Used Dec. %	Scrap — On Hand Dec. 31	Scrap — Sold 1938	Total including scrap Dec. 31	Ratio to Op. Exp. %	Road
$92,398	+1	$592,503	+4	8.9	$801,947	+7	$947,299	+5	7.5	$1,521,474	+5	$15,966	$68,678	$963,265	23.2	Bang. & Ar.
75,784	+20	1,163,786	1	8.6	1,636,030	21	1,504,056	2	4.5	4,027,491	11	119,381	342,410	1,623,437	10.5	B. & A.
365,922	33	1,905,948	23	5.9	3,893,762	31	3,038,027	23	4.5	7,992,859	23	34,179	135,813	3,072,206	9.4	B. & M.
77,080	15	336,664	16	6.5	622,044	20	540,788	15	5.0	1,319,912	20	35,339	123,733	576,127	12.1	C. Vt.
344,166	60	710,107	21	6.7	1,270,187	41	1;102,991	11	4.4	3,008,518	14	12,363	14,134	1,115,354	13.2	Me. Cent.
419,399	5	3,056,180	29	3.1	12,077,675	4	4,735,014	24	3.2	17,461,249	7	274,019	978,874	5,009,033	8.5	N. Y. N. H.
62,962*	+29	171,112	30	9.8	209,262*	71	267,598	34	4.8	668,103*	45	5,400	14,550	272,998	8.6	Rutland
1,437,711	..	7,936,300	..	4.6	20,510,907	..	12,135,907	..	4.1	35,999,606	..	496,647	1,678,192	12,632,420	....	
56,981	6	167,486	23	5.1	397,038	26	200,502	39	2.7	889,173	20	4,557	10,403	205,059	7.0	Ann Arbor
30,226	+9	37,125	7	6.3	70,986	+9	43,804	14	3.9	134,324	4	6,173	1,426	49,977	39.5	Camb. & Ind.
282,816	35	1,331,878	7	11.5	1,387,908	45	2,446,757	8	8.2	3,583,080	48	38,889	167,628	2,485,646	15.5	D. & H.
247,648	1	1,290,170	22	4.8	3,241,873	40	1,791,680	19	2.7	7,943,304	27	26,986	606,915	1,818,666	5.0	D. L. & W.
23,452	+5	137,575	+4	19.5	84,505	28	174,164	1	11.5	180,028	15	1,166	4,542	175,330	2.7	Detr. & Mack.
21,890	24	69,634	1	11.0	75,626	36	109,962	+5	6.1	215,029	30	2,428	2,148	112,390	7.5	D. & T. S. L.
654,226	11	1,821,479	26	2.8	7,803,504	14	2,852,958	+25	2.3	14,629,179	19	423,620	1,200,509	3,276,578	5.5	Erie
458,736	4	979,812	23	5.2	2,257,589	43	1,535,151	23	4.1	4,510,812	33	87,022	211,193	1,622,173	9.7	G. T. W.
24,553	9	56,483	14	7.1	95,009	6	92,204	19	4.7	233,802	16	822	11,410	93,026	8.9	L. & H. R.
27,306	+5	164,003	15	6.6	296,695	48	336,305	10	6.8	601,072	37	37,421	15,402	373,726	14.6	L. & N. E.
151,265	+74	1,715,816	32	4.1	5,026,889	20	2,434,837	25	3.3	8,916,490	19	121,309	491,628	2,556,146	8.1	L. V.
42,525	48	164,211	8	11.8	167,724	+21	186,291	10	7.0	318,032	7	639	8,563	186,930	13.8	Monong.
13,267	27	129,452	1	10.0	173,701	22	142,836	+6	6.0	283,438	22	1,101	20,064	143,937	13.0	Montour
2,972,748	12	16,931,332	16	7.7	26,332,524	42	23,881,979	12	5.9	48,524,544	34	637,305	5,093,820	24,519,284	10.3	N. Y. C.
371,157	14	863,031	23	3.2	3,261,217	21	1,636,669	8	2.8	6,906,769	20	40,573	394,927	1,677,243	6.5	N. Plate
55,440	13	381,280	15	6.9	662,761	6	444,000	33	3.6	1,457,769	2	20,734	60,692	485,134	7.6	N. Y. O. & W.
751,764	9	727,150	20	3.5	2,470,144	27	1,522,919	11	3.1	5,860,131	22	40,125	261,472	1,563,044	7.3	P. M.
38,895	32	80,612	11	16.3	59,583	6	112,261	13	10.1	133,035	22	5,788	2,159	118,049	22.0	P. & S.
96,921	..	430,238	+21	24.8	209,695*	..	486,287	2	12.7	462,626*	..	....	12,812	486,287	20.8	P. & W. Va.
20,865	24	54,331	18	16.7	39,373	55	77,168	15	7.0	133,078	37	3,283	1,685	80,391	11.5	P. S. & N.
882,334	+7	1,376,881	25	3.8	4,299,155	41	2,466,871	13	3.7	8,072,112	33	33,105	126,484	2,499,977	7.7	Wabash
7,225,015	..	28,910,106	..	5.9	58,413,499	..	42,975,945	..	4.5	113,987,827	..	1,533,046	8,705,882	44,508,993	....	
35,842	20	64,773	18	5.0	157,105	18	84,355	18	3.5	287,056	20	1,917	5,972	86,272	6.7	A. C. & Y.
11,347	47	43,323	8	5.4	97,651	30	53,899	40	2.7	240,506	22	750	7,080	54,649	6.1	A. & S.
1,179,990	40	5,427,213	39	4.1	15,982,298	52	7,314,217	39	3.3	26,654,877	43	31,082	3,022,430	7,345,300	8.4	B. & O.
30,980	34	226,875	17	1.9	1,435,543	34	282,733	18	17.8	1,910,297	33	4,200	142,558	286,933	8.6	B. & O. C. T.
192,035	+1	214,398	24	4.7	545,877	+15	351,276	36	3.1	1,339,275	3	67,735	36,511	419,011	13.0	Belt
228,079	21	566,694	2	7.9	864,190	49	724,150	+5	5.8	1,508,432	35	94,626	22,051	818,776	14.3	B. & L. E.
160,462	+22	933,140	24	3.5	3,211,672	13	1,420,238	19	2.6	6,423,344	12	67,186	189,987	1,487,424	6.9	C. of N. J.
199,279	+11	492,845	22	3.3	1,799,388	27	903,445	21	3.6	2,985,623	26	175,612	91,432	1,079,057	9.7	C. & E. I.
26,975	20	258,395	10	5.8	535,620	28	290,658	5	4.7	750,242	28	24,345	44,975	314,405	12.2	C. & I. M.
58,706	+1	233,712	+8	5.5	512,315	+1	326,429	13	5.3	745,652	9	27,247	30,845	353,676	20.6	C. & W. I.
171,623	+75	569,244	20	8.7	777,909	22	803,475	25	6.6	1,455,777	22	42,186	67,406	845,661	10.1	C. I. & L.
89,702	17	277,676	20	5.6	592,309	25	455,556	18	6.0	906,623	32	4,186	18,029	459,742	14.2	D. T. & I.
146,379	52	712,753	18	9.0	945,039	70	956,560	1	7.1	1,609,223	42	66,099	96,163	1,022,659	10.6	E. J. & E.
62,765	..	305,760	..	5.9	633,643	..	377,549	..	5.6	811,707	..	3,031	24,553	380,580	10.0	Ill. Term'l
136,911	1	853,021	28	3.6	2,874,531	21	1,093,016	25	3.3	3,961,691	18	11,871	49,081	1,104,887	6.2	Long Island
2,260,921	47	23,387,503	30	5.6	49,629,510	48	30,974,823	27	5.2	71,276,754	43	1,619,597	2,233,439	32,594,420	12.6	Penna.
113,044	+35	77,458	31	4.4	210,567	26	135,208	45	2.1	779,719	6	2,789	42,474	137,997	2.5	P. R. S. S.
230,384	26	3,519,554	17	10.5	3,957,227	45	4,753,731	28	6.7	8,397,743	54	61,412	395,561	4,815,151	13.5	Reading
237,292	33	1,027,159	9	9.9	1,516,823	21	1,599,549	7	7.0	2,736,709	24	62,603	223,553	1,662,152	18.0	W. Md.
112,261	59	776,573	6	9.0	1,027,147	70	1,068,609	12	7.4	1,741,779	64	3,911	111,598	1,072,520	13.1	W. & L. E.
5,684,977	..	39,968,269	..	5.5	87,306,364	..	53,968,878	..	4.7	136,523,029	..	2,372,385	6,855,698	56,341,272	....	
648,504	+21	1,996,605	21	2.2	10,652,853	19	3,395,229	13	2.3	17,548,283	17	87,970	1,021,547	3,483,199	5.4	C. & O.
41,470*	78	4,518,417	16	5.5	9,761,467*	17	6,468,977	5	5.5	14,196,690*	19	112,506	.....	6,581,483	14.3	N. & W.
162,960	14	515,411	14	7.3	838,459	37	733,727	12	4.8	1,812,783	13	.....	.....	733,727	12.0	R. F. & P.
360,527	+74	1,660,137	6	6.6	3,008,180	1	2,251,702	+2	6.3	4,279 233	+2	67,883	204,916	2,319,585	24.0	Va.
1,213,461	..	8,690,570	..	4.3	24,260,959	..	12,849,635	..	4.1	37,836,989	..	268,359	1,226,463	13,117,994	....	
141,633	+1	516,736	15	17.3	360,656	65	681,507	20	6.9	1,186,376	42	16,088	51,700	697,595	11.6	A. T. & N.
117,913	23	211,707	16	6.4	398,795*	20	330,120	17	5.1	786,982*	16	4,300	2,775	334,420	11.0	A. & W. P.
931,824	+19	1,788,289	+2	3.9	5,412,006	22	4,068,809	+11	4.1	11,813,806	6	130,696	456,551	4,199.505	11.8	A. & B. C.
353,636	+8	614,178	33	4.6	1,602,556	38	1,033,390	27	3.9	3,210.993	30	24,294	141,221	1,057,684	8.1	A. C. L.
68,785	+2	122,401	+6	5.8	251,694	7	177,553	+7	4.0	534.517	7	10,490	33,909	188,043	11.5	Cent. of Ga.
104,138	15	267,142	5	6.8	476,776	25	490,729	+7	6.4	922.188	25	47,005	24,761	537,734	16.5	C. & W. C.
39,598	23	124.019	6	11.7	127,512	14	136,631	7	6.1	265.949	16	9,622	10,035	146,253	13.9	Clinch.
159,726	18	1,155,871	9	13.0	1,069,683	15	1,680,285	18	9.9	2,062,358	17	15,885	82,648	1,696,170	24.2	Col. & Green.
50,283	45	68,392	15	6.2	132,058	12	84,183	29	3.5	292.837	23	1,163	3,553	85,346	8.2	F. E. C.
250,330	10	381,135	11	9.8	471,380	41	534,328	68	6.2	1,043,057	40	15,423	65,512	549,751	11.9	Ga. & Fla.
1,591,742	+9	4,911,159	24	5.3	10,991,554	28	6,223,784	25	3.6	20,547,304	20	842,418	557,706	7,066,202	9.3	G. M. & N.
1,071,961	+4	4,635,280	22	4.5	10,212,340	24	7,444,717	12	5.2	17,003,049	20	184,401	1,037,090	7,629,118	12.4	I. C.
36,577	..	43,265	14	10.1	51,736*	..	100,931	27	8.3	146,030	..	284	8,200	101,215	15.7	L. & N.
280,999	3	863,849	1	6.7	1,539,082	+16	1,133,851	+10	5.4	2,529,493	+9	250,126	73,332	1,383,977	15.3	Miss. Cent.
228,414	+14	1,083,545	5	11.3	1,148,641	38	1,578,272	6	7.2	2,595,531	23	.....	.....	1,578,272	14.5	M. O.
181,592	35	314,235	37	9.1	412,985	23	403,742	15	5.6	855,520	31	16,625	.....	420,367	11.7	N. C. & St. L.
1,069,322	1	2,176,552	29	4.5	5,747,379	13	3,256,448	30	3.6	11,012,087	8	235,005	316,568	3,491,453	10.2	N. S.
2,703,482	7	3,642,341	36	3.5	12,119,849	29	5,669,330	26	2.9	23,267,674	21	267,379	1,724,400	5,936,710	7.1	S. A. L.
49,477	18	227,828	+12	11.9	229,995	+13	237,371*	21	6.5	443,036	19	Not separated	4,291	237,371	14.0	Southern
9,430,532	..	23,147,924	..	....	52,756,677	..	35,265,981	..	....	100,518,787	..	2,071,204	4,594,252	37,337,186	....	Tenn. Cent.
35,852	+70	200,671	4	9.8	246,940	37	232,691	+1	9.9	292.635	43	889	9,346	233,580	24.5	B. A. & P.
1,740,313	1	5,522,695	18	5.7	11,668,662	31	9,668,634	16	5.9	19,679.335	30	253,545	913,840	9,922,180	14.1	C. & N. W.
376,895	12	369,072	33	2.4	1,841,468	26	485,260	37	14.4	4,046.137	25	160,724	156,018	645,984	49.0	C. G. W.
1,769,963	21	5,919,053	20	3.3	2,136,323	+30	9,017,958	23	9.6	11,263,920	59	177,723	679,046	9,195,681	11.4	C. M. St. P.
401,327	+2	784.879	11	4.1	2,263,091	7	1,569,174	8	4.2	4,510,514	20	32,166	129,462	1,601,340	11.0	Omaha
107,484	44	492,930	27	6.0	982,176	56	1,277,154	19	8.7	1,776,183	53	25,364	62,550	1,302,518	19.7	D. M. & I. R.
62,766	23	140,242	6	9.5	176,979	40	229,406	+1	6.0	457,315	32	1,824	19,084	231,231	13.2	D. S. S. & A.
50,358	+13	71,320	11	8.5	101,310	+1	248,014	7	10.9	272,784	2	1,512	7,082	249,526	21.8	D. W. & P.
1,329,756	7	5,056,406*	15	10.7	5,640,000*	50	8,469,983	8	7.4	13,772,793*	..	....	681,468	8,469,983	15.5	G. N.
106,771	15	143,920	+1	7.7	223,984	+130	195,074	+1	4.5	522,748	+2	4,812	5,836	199,886	17.1	G. B. & W.
25,629	27	120,727	21	19.3	75,463	61	257,082	15	18.0	173,271	53	11,820	2,471	268,902	27.3	L. S. & I.
329,990	1	458,475	10	4.7	1,168,464	+28	1,813,211	27	3.9	2,040,151	+13	30,736	93,402	701,494	9.7	M. & St. L.
610,637	12	1,098,765	13	7.0	1,903,738	10	1,813,211	3	4.4	4,886,007	5	50,932	194,976	1,864,143	9.0	Soo
1,470,230	+24	5,484,657	8	7.0	9,425,441	30	8,269.287	1	5.9	17,024.374	14	463,583	517,414	8,732,870	18.5	N. P.
29,137	11	39,164	+1	9.5	50,223	33	70,176	+2	6.5	130,772	22	975	.....	71,151	12.0	Spok. Int.
250,909	+52	505,770	1	9.5	637,421	+6	744,562	9	5.9	1,512,970	5	20,296	95,891	764,858	12.6	S. P. & S.
8,698,017	..	26,408,746	..	....	38,541,683	..	43,218,424	..	....	82,361,909	..	1,236,901	3,567,886	44,455,327	....	
549,069	+20	403,605	33	1.8	2,673,408	36	691,341	33	19.4	4.220,565	36	23,811	321,550	715,152	5.9	Alton
2,151,186	29	10,665,393	28	6.7	19,164,723	30	21,183,663	19	7.1	36,704.455	29	543,541	860,722	21,727,204	18.2	A. T. & S. F.
23,380	31	35,740	14	10.8	39,332	20	53,817	6	7.4	87,476	51	1,888	4,396	55,705	15.6	Bing. & Gar.
2,515,353	+2	4,574,886	28	3.6	15,175,580	45	8,331,413	20	4.3	23,423,933	37	625,438	429,168	8,956,851	13.3	C. B. & Q.
1,155,484	12	4,946,307	5	5.3	11,156,668	+2	6,912,267	1	4.1	20,327,271	5	192,337	1,435,398	7,104,605	11.0	C. R. I. & P.
89,867	+1	233,812	8	4.1	684,282	37	417,899	21	3.8	1,309,709	30	150,570	122.729	568,470	11.1	C. & S.
402,946	39	2,497,438	25	5.7	5,259,218	17	3,584,498	22	5.5	7,871,558	25	55,562	177,742	3,640,060	18.5	D. & R. G. W.
103,713	+26	417,101	7	6.0	844.524	14	599.389	+1	5.1	1,413,998	9	22,122	70,908	621,511	13.5	Ft. W. & D. C.
27,338	+22	65,121	7	10.5	72,927	14	95,777	45	6.3	182,081	60	995	1,712	96,772	29.4	Nev. Nor.
38,028	26	70,612	38	2.2	366,744	14	200,675	11	3.0	779,424	15	3,250	37,992	203,925	5.7	N. W. Pac.
11,412	32	88,138	1	3.3	318,905	21	102,586	15	2.9	425,203	28	4,204	18,833	106,790	12.4	P. & P. U.
33,048	21	31,183	7	5.9	62,928	26	49,334	8	3.3	178,344	19	.....	5,292	49,334	....	S. D. & A. E.
1,668,816	+1	6,547,682	22	3.9	20,514.084	17	10,059,928	18	2.8	44,235,108	13	364,735	2,144,920	10,424,663	8.8	S. P.
1,329,698*	17	15,517,297	33	9.0	20,848,029*	40	21,326,929	29	7.3	35,176,782*	32	246,550	750,674*	21,573,479	20.4	U. P.
13,891	37	161,353	7	3.0	64,851	46	266.104	7	2.9	111,474	49	43	2,623	266,147	4.4	Utah
429,264	21	1,757,421	7	15.0	1,411,125	28	2,399,344	15	6.7	4,242,122	19	24,992	126,241	2,424,336	18.0	W. P.
10,542,493	..	48,012,789	..	....	98,657,328	..	76,274,964	..	....	180,689,503	..	2,260,038	6,348,281	78,535,004	....	
13,045	+36	36,197	4	4.3	100,777	+130	83,834	+32	5.7	177,415	+8	278	404	84,112	6.7	B.-R. I.
288,642	15	711,843	1	4.2	2,036,258	1	1,146,508	2	3.4	3,374,286	2	10,727	45,299	1,157,235	11.2	G. C. L.
159,949	+2	830,745	13	5.2	1,931,909	9	1,368,698	25	5.1	3,255,705	11	45,627	234,826	1,414,325	14.2	I.-G. N.
....	....	533,159	5	....	.....	....	1,327,035	2	.....	.....	..	37,255	.....	1,364,290	16.2	K. C. S.
26,288	14	140,327	2	2.9	576.040	12	192,927	4	2.9	775,650	15	4,504	9,379	197,431	3.4	K. C. Term.
132,015	19	410,279	20	9.0	549,589	34	785,449	3	9.0	1,054,912	44	25,291	103,888	810,740	20.4	L. & A.
51,094	25	42,707	3	7.1	72,105	+6	45,697	9	2.6	206,285	9	.....	1,922	45,697	5.4	Mo. & Ark.
561,592	7	1,604,915	9	5.5	3,511,916	19	2,140,290	13	4.2	6,173,449	18	Not separated	.....	2,140,290	9.6	M-K-T
2,314,440	+9	5,165,556	16	6.5	9,485,646	30	7,266,012	12	4.6	18,902,746	19	.....	849,154	7,266,012	11.2	M. P.
1,445,533	15	2,996,355	11	4.8	7,490,403	19	5,010,910	10	4.5	13,230,360	18	64,654	.....	5,075,564	12.7	St. L.-S. F.
346,616	18	771,653	33	5.6	1,660,983	41	1,675,074	23	6.1	3,240,757	33	.....	194,899	1,675,074	12.4	St. L. S. W.
49,140	10	322,401	12	4.0	982,791	9	382,686	22	2.7	1,673,670	13	3,721	32,545	386,407	7.5	T. of St. L.
734,373	1	1,917,663	21	3.7	6,142,486	27	3,793,092	18	4.3	10,350,623	21	136,198	370,482	3,929,200	12.0	T. & N. O.
108,927*	..	2,257,713	12	9.7	2,798,065*	32	4,003,776	6	10.3	4,661,255*	25	Not separated	.....	4,003,776	21.8	T. & P.
19,750	55	17,263	10	....	.....	....	22,787	7	6.1	44,634	..	.....	1,392	22,787	....	W. F. & S.
22,067	+1	12,870	30	3.8	40,146	6	20,916	6	2.6	96,794	4	462	751	21,378	5.5	W. V.
6,273,466	..	17,771,646	..	....	37,379,114	..	29,265,601	..	....	67,218,541	..	328,717	1,844,941	29,594,318	....	
$50,889,515	..	$200,566,033	..	5.8	$421,002,214	..	$306,020,096	..	5.8	$760,875,394	..	$11,541,602	$36,929,677	$317,561,698	11.5	

the railroads January 1, 1939, reflected reductions on 108 roads and increases on 7 roads while the consumption of miscellaneous materials reflected reductions on 100 roads and increases on 11 roads.

Turn-over figures are included in the analysis because of the persistence with which some railway supply officers urge the superiority of such statistics over other standards of measurement for making comparisons between different roads, a position from which these same officers have had reason to retreat somewhat since 1929 when the consumption of materials was less subject to interruptions beyond the control of railway personnel than at present. Such figures alone are admittedly far from satisfactory at any time with such materials as rail and ties which are not used uniformly during the year and which can be used rapidly during normal track improvement programs. The wide variations between the rate of turn over of store stocks on different roads during the last year, as in previous years, also shows that they can result in misleading comparisons unless considered with other information. The regional averages are less likely to be disturbed.

Based on the average monthly turnover in 1938, fuel stocks on January 1, 1938, represented a 15 days' supply in the Central Region as compared with a 75 days' supply in the Southwestern Region where large quantities of fuel oil are stored by some roads. On the other hand the cross tie ratio was lowest in the Southern region where the inventory on January 1 represented only a 7.8 months' supply and it was highest in the Pocahontas region where the inventory represented a 21 months' supply, based on the average monthly consumption during the 12 previous months. Corresponding values were 18.3 months in the New England region, 13.5 in the Great Lakes region, 16.1 in the Central Eastern region, 13.3 in the Northwestern region, and 15.8 months' in the Central Western region.

On the same basis, store stocks on January 1, 1938, reflected a 4.6 months' supply in the New England region, 5.9 months' in the Great Lakes region, 5.5 months'



Inventories of 70 Railroads Compared—Fuel, Rail, Ties and Scrap Excluded Except in Charts of N. Y. C.; P. M.; N. Y. C. & St. L.; and C. & O. January, 1936, Taken as 100 in Each Case

Approximate Quantities of Material in Stock, December 31, 1938

	Fuel		Rail			
	Coal (tons)	Oil (bbl.)	New (tons)	Old (tons)	Crossties (number)	Scrap (tons)
New England Region:						
Bang. & Aroos.	24,053		640	1,501	249,707	
Boston & Albany	20,977	449	185	4,903	92,062	9,075
Boston & Maine	35,304		444	8,268	470,399	4,883
Central Vermont	5,925		291	868	157,794	3,266
Maine Central	8,794		1,929	4,085	180,067	1,766*
N. Y. N. H. & H.	159,628	9,786	1,490	7,556	779,669	
Great Lakes Region:						
Cambria & Ind.	281		13	185	1,504	625
D. L. & W.	42,219	1,049	70	4,188	203,385	2,314
Detroit & Mack.	1,318			509	28,120	97
D. & T. S. L.	1,921	13	9	233	15,513	593
Erie	70,367	1,970	579	6,342	590,039	25,722
G. T. W.	83,019		665	8,172	46,631	4,663
L. & N. E.	20,473	52	214	1,338	30,812	2,687
Lehigh Valley	67,141	2,383	2,970	4,669	215,169	3,974
Monongahela	955	72	65	210	6,909	90
Montour	605	19	234	69	276	93
N. Y. C. & St. L.	46,344	531	582	3,988	426,050	2,587
N. Y. O. & W.	10,059		743		8,989	2,088
P. & W. Va	3,254	80	438	777	6,597	
P. M.	47,207	781	193	3,945	421,477	
P. & S.	944	12	1	279	21,564	362
P. S. & N.	494			569	7,125	205
Central Eastern Region:						
A. C. & Y.	614	3	105	209	7,208	148
Alton & Sou.	200		96	152	1,297	75
B. & L. E.	5,499	40	778	2,331	27,641	7,873
B. & O.	163,785	782	16,392	11,326	523,881	2,428
B. & O. C. T.	3,236	305	129	486	13,935	339
Cent. of N. J.	26,051	381	2,084	2,238	187,040	6,220
C. & E. I.	12,369	503	343	6,315	232,737	11,398
C. & I. M.	1,595	236	113	1,025	9,065	1,680
D. T. & I.	4,712	228	476	1,952	93,170	419
E. J. & E.	12,560	1,027	1,609	517	78,587	4,946
Reading	28,608	1,200				
West. Maryland	24,413	871	282	973	444,112	3,935
W. & L. E.	14,418	197	789	4,582	127,422	314
Pocahontas Region:						
C. & O.	183,076	96	272	11,618	870,822	5,093
R. F. & P.	12,277		278	612	140,840	
Virginian	7,647		2,315	2,349	444,201	6,191
Southern Region:						
A. & W. P.	12,909		418	1,042	76,279	1,460
A. B. & C.	9,715		51	866	80,351	465
Cent. of Ga.	21,627		104	1,411	362,698	
Clinchfield	6,835		1,853	309	137,618	4,468
Col. & Green	287	180	12	379	4,213	796
Southern Region (Continued):						
F. E. C.		179,537	523	12,474	57,639	1,755
Ga. & Fla.	1,162			515	1,820	161
G. M. & N.	12,650	426	36	2,400	84,670	1,177
L. & N.	137,305		11,596	17,229	1,349,240	
I. C.	179,356	6,428	572	14,700	574,141	
Miss. Cent.	950			470	55,322	
M. & O.	20,422	1,050	2,302	1,634	155,107	17,695
N C. & St. L.	64,904		1,421	1,702	262,991	
Norfolk Sou.	4,153			1,070	81,502	1,939
S. A. L.	116,418	1,065	1,741	12,227	456,860	37,852
Southern	201,131	3,349	717	8,995	1,009,950	19,066
Tenn. Cent.	1,174	85				
Northwestern Region:						
B. A. & P.	179		252	26	11,362	127
C. & N. W.	228,561	61,817				
C. G. W.	17,688	893	37	1,857	29,824	22,275
C. St. P. M. & O.	24,861	2,244	2,689	4,912	469,133	4,021
D. M. & I. R.	71,535	756	699	2,830	291,760	2,196
D. S. S. & A.	1,071		14	1,639	85,522	
D. W. & P.	251		2,625	916	36,388	141
G. N.	391,336	223,369				
G. B. & W.	1,477	113	70	539	47,387	752
L. S. & I.	12,352	60	3	2,120	36,513	1,157
Minn. & St. L.	14,943	816	44	3,906	106,400	2,190
Soo	41,870	87	184	6,648	473,311	
N. P.	105,169	41,755	6,331	22,415	1,934,587	
Spok. Int	1,024		5	710	23,140	72
S. P. & S.		70,368	45	1,842	117,853	1,620
Central Western Region:						
Alton	13,781	475	368	3,241	126,648	
A. T. & S. F.	809,890		116,332†		4,451,870	
Bing. & Garfield			42	105	6,339	185
Colo. & Sou.	12,000	4,125	79	2,635	88,924	3,080
D. & R. G. W.	32,079		8,679	12,711	444,125	8,640
Ft. W. & D. C.	1,060	199,576	98	872	14,571	2,129
Ill. Terminal	879		27	406	63,154	409
Nevada Northern	730		83	158		
P. & P. U.	2,455	310	1	306	840	394
Utah	975		632	733	21,110	11
W. Pac.	8,557	97,667	1,651	6,061	264,694	1,672
Southwestern Region:						
Burl.-R. I.		2,241	31	80	46,086	37
Gulf Coast		304,762	364	5,076	87,325	853
I.-G. N.	193	433,872	217	4,987	126,187	4,082
K. C. S.	4,664	435,845	174	5,604		
K. C. Term'l	2,373	2,670	71	0	26,571	731
L. & A.	51	399,429	21	1,000	112,702	1,589
Mo. & Ark.	515			18	2,937	
St. L. & S. W.	1,662	587,929	1,566	9,156	336,577	
Term'l of St. L.	6,988	161	548	56	9,544	744
T. & N. O.	2,450	188,321	1,599	19,705	775,999	
W. Val.		2,214		37	5,006	22

Not reported where spaces are left blank. *Rail only. †New and old rail.

in the Central region, 4.3 months' in the Pocahontas region, 5.3 months' in the Southern region, 8.2 months' in the Northwestern region, 5.8 months' supply in the Central Western region and a 5.7 months' supply in the Southwestern region.

Iron and steel scrap on hand at the close of 1938 represented 3.6 per cent of the total inventory and when compared to the sales, the combined inventory of iron and steel scrap represented a turnover of scrap 3.3 times a year in 1938.

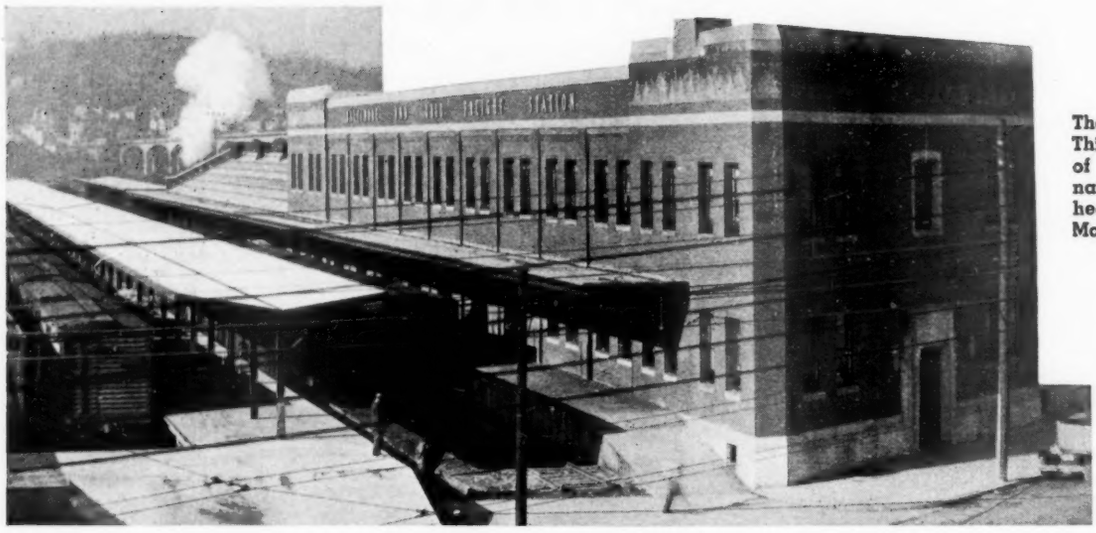
Aggregate crosstie stocks on December 31, including ties at treating plants and unapplied crossties on the line of road were equivalent to an outlay of approximately $225 per mile of road while the new rail in stock represented about one ton of new rail per mile of road.

No Excess on Some Roads

Approximately 35 railroads reported less than a 4 months' supply of material on hand, exclusive of fuel, rail and ties on January 1, based on the average monthly consumption in 1938. These stocks represented a 3.2 months' supply on the New York, New Haven & Hartford; a 2.7 months' supply on the Delaware, Lackawanna & Western; 2.3 months on the Erie; 3.3 months on the Lehigh Valley; 3.1 months on the Pere Marquette; 3.7 months on the Wabash; 3.3 months on the Baltimore & Ohio; 2.6 months on the Central of New Jersey; 2.3 months on the C. & O.; 3.9 months on the Central of Georgia; 3.6 months on the Illinois Central and the S. A. L., 2.9 months on the Southern; 2.8 months on the So. Pac., and 2.7 months on the Terminal of St. Louis.

Total materials in the hands of the Class I railroads on January 1, 1939, were equivalent to 11.5 per cent of total operating expenses in 1938. As compared with this, the ratio of total inventories to annual operating expenses was 8.5 per cent on the New York, New Haven & Hartford, 5.0 per cent on the Delaware, Lackawanna & Western, 5.5 per cent on the Erie, 8.1 per cent on the Lehigh Valley, 7.3 per cent on the Pere Marquette, 8.4 per cent on the Baltimore & Ohio, 6.9 per cent on the Central of New Jersey, 8.1 per cent on the Central of Georgia, 9.3 per cent on the Illinois Central, 7.1 per cent on the Southern, 9.0 per cent on the Soo, 5.9 per cent on the Alton, 8.8 per cent on the Southern Pacific, 9.6 per cent on the Missouri-Kansas-Texas, and 5.4 per cent on the Missouri & Arkansas. For further comparisons with previous years reference is made to the *Railway Age* of April 9, 1938.

An intensified transportation "axis" between Rome and Berlin is viewed with alarm by the administration of the Swiss Federal railways, according to the office of the American commercial attache, Rome, Italy. It is apparent that the German and Italian state railway systems are diverting freight and passenger traffic between the two countries from the formerly-important Swiss St. Gotthard route to a line through the German Brenner Pass. To meet this, the Swiss railways are introducing more frequent and speedier service over the St. Gotthard route and are planning to double-track the tunnel. There is also reported a program of the Rome-Berlin axis to divert traffic between Italian cities and the Rhine valley, Belgium, Holland and England from the present Basle route to an all-Italian-German route via Brenner, Innsbruck and Stuttgart.



The Second Floor Area of This Large Freight Office of the B. & O. at Cincinnati, Ohio, Over the Unheated Trucking Floor, Is Made Comfortable Through Insulation

B. & O. Makes Extensive Use of Insulation in Buildings

Has installed approximately 541,600 sq. ft. in more than 150 structures of various kinds during the last 12 years

THE Baltimore & Ohio is believed to have employed thermal insulation in more buildings than any other railroad in the United States, more than 150 structures of varying types having been insulated on this road in whole or in part, for various purposes. Its use of insulation has been confined largely to new construction, as contrasted with renovation and repair work; has been limited largely to the rigid-board type; and has been in large measure in a semi-structural sense, in combination with its heat-flow retarding qualities.

To Prevent Condensation

The Baltimore & Ohio began using building insulation about 12 years ago, and, to date, has used a total of approximately 541,600 sq. ft. of this material. One of the major uses to which this material has been put is the insulating of the steel roof decks of unheated structures, to prevent condensation on the under side and to form a practical means of divorcing the steel roof sheets from the top waterproof roof coating.

As regards condensation, it has been found that in humid climates, and particularly along the seacoast, there is frequent severe sweating or moisture condensation on the under side of uninsulated steel decks, often to the point of dripping, and, in any event, sufficient to cause the deterioration of any paint finish, if not of the deck material itself. This condensation is brought about by the high thermal conductivity of the steel deck material, which cools rapidly, in combination with the warm humid air confined beneath it. Where the steel decking is insulated adequately on top, the high conductivity of the metal is offset by the fact that cooler outside temperatures are kept from the metal, with the result that the relationship between the temperature of the metal decking and of the air confined beneath remains such that condensation will not take place, or is reduced to a minimum.

As regards the separation of the deck structure itself from the roof coating, it has been found highly impracticable, particularly on roofs of large area, to apply any form of built-up bituminous roofing directly to a steel roof deck, the roofing being affected adversely, if not destroyed in time, by movement of the roof deck under vibration, wind action, or expansion and contraction. It is doubtful if any roofing manufacturers recommend or permit the application of any type of built-up roofing directly to steel roof decks.

104 Decks Insulated

The importance which the Baltimore & Ohio has attached to the use of insulation to prevent roof condensation and to separate roof decks from their top coatings, is seen in the fact that insulation for these purposes has been applied to 104 structures of various types, including 14 stairway enclosures at passenger stations; 12 enclosed passenger shelters; 3 overhead covered walkways at passenger stations; 2 freight houses, 2 piers, 1 automobile platform and 1 sub-station; 1 covered subway approach; and several canopies at piers and freight houses. In addition, it has applied insulation in this manner to the roofs of 63 water-treating plants and 2 pump houses. With the exception of the water-treating plants, most of the structures so insulated are on the eastern part of the road, but a number of them are located at points on the system as far west as Cleveland, Ohio, and Wheeling, W. Va. The amount of insulation involved in these structures has varied from as little as 300 to 1,000 sq. ft. in a few instances, to several thousand feet in the majority of cases, and exceeded

29,000 sq. ft. in the case of one freight house and two piers.

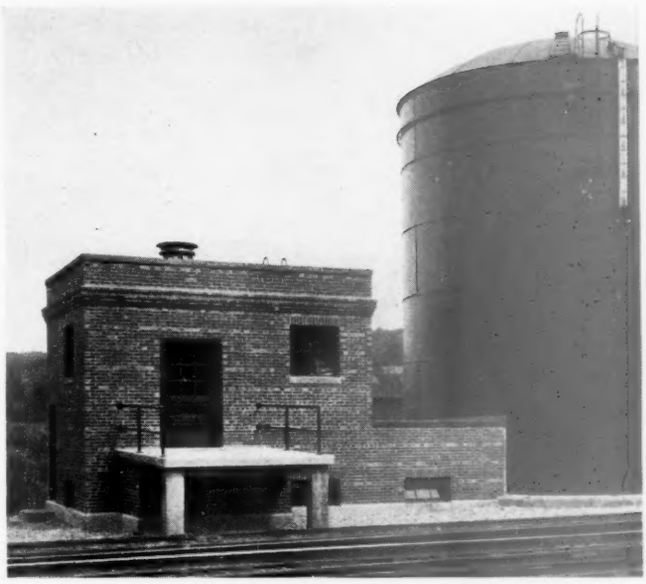
In all of these structures, ½-in. rigid board insulation was cemented directly to the deck surface with a bituminous adhesive, and the built-up roofing was then applied directly over the top. Thus, in each unit, a smooth-surface roof was provided with a degree of resilience or flexibility between the structural sheets and the weatherproof coating. This same method of roof application was employed in all of the water-treating plants mentioned, most of which have cement tile roofs, and has been found equally as effective in overcoming condensation and in preventing damage to the roof covering.

To Prevent Heat Losses

In addition to the use of insulation for roof decks, where no heating has been involved, the Baltimore & Ohio has also used this material rather extensively for the prevention of heat losses from heated buildings, with consequent savings in the cost of heating plants and in fuel. In most cases of this character, new buildings have been involved, and the insulating material has been installed on top of the roof decks. However, it has also been used in the walls of a few structures where this seemed desirable and could be carried out economically, and, in addition, in the floors of certain buildings, the undersides of which are exposed to outside temperatures. This latter condition has been found frequently in enclosures located on elevated platforms; at stations with open foundations; and in freight offices, the floors of which, either first or second, are over unheated areas.

A list of the various structures thus insulated on the B. & O., involving roofs, ceilings, walls or floors, includes five passenger stations where the roofs and floors were insulated; one passenger station where the walls, ceilings and floors were insulated; another passenger station where the ceiling alone was insulated; still another passenger station where the floor alone was insulated; eight signal towers where either the roof or ceiling was insulated; seven office buildings, including four yard office buildings, in which the roofs were insulated; two large banana warehouses where the roofs were insulated; two freight offices where the under side of the second floor was insulated; another freight office where the walls and ceilings were insulated; one produce auction sales building, the roof of which alone was insulated; and several miscellaneous structures.

Many Metal Stairway Coverings and Platform Canopies on the Staten Island Lines of the B. & O. Are Insulated Against Condensation



One of the Many Water-Treating Plants on the Road Where Insulation Was Used Over a Cement Tile Roof Deck to Prevent Condensation

This list includes a total of 33 buildings in which insulation has been installed, the separate installations involving as little as 280 sq. ft. in the case of the signal towers, and as much as 140,912 sq. ft. in the case of the auction sales building. In all, these installations involve the use of 257,127 sq. ft. of insulating material.

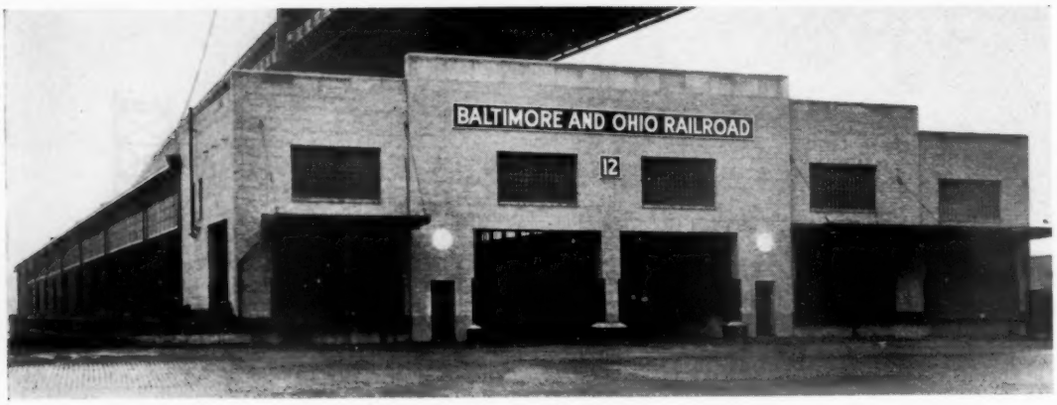
Except in the auction sales building, the insulation employed in all of the buildings was of the fibre- or cork-board type; the fibre-board-type, in thicknesses of ½ in. or 1 in., depending upon conditions, being employed exclusively in the insulation of the roofs, ceilings and walls, while the cork-board-type, in thicknesses of 2 in. or 3 in., was used exclusively, with one exception, in floors. In the case of the one exception, which was the under side of a second floor over an open freight house area, fibre board was used.

In the case of all roof insulation, the insulating material was applied on top of the roof deck, directly beneath the roof covering, as previously described, while in the case of the walls and ceilings, the insulating board was nailed directly to the wall studding and ceiling joists. In the insulating of ground floors, the cork board was applied between the sub-flooring and the finished flooring, while in those cases where the second floor over exposed areas was insulated, the insulating board was applied to the under side of the second story floor joists.

The one deviation from the use of board-type insulation was in the large auction sales building, where the roof, with an area of 114,912 sq. ft., was insulated with 1½ in. of Pyrolfill. This material, a gypsum fibre concrete, weighing only about 50 lb. per cu. ft., was poured in place and then covered with built-up roofing.

Insulate Large Pier

The outstanding use of insulation in an existing building on the B. & O. was in its large Pier No. 22, at New York, which was being rehabilitated to permit the handling of perishable produce. The converting of the pier for this purpose required the provision of a heating plant to keep the temperature above freezing during the winter,



The Entire Steel Roof Deck of This New B. & O. Pier at Philadelphia Is Covered with ½-In. Board Insulation and Built-Up Composition Roofing

which fact, in conjunction with the type of construction of the pier, gave rise to the thought of insulating the structure to minimize heat losses and to permit the installation of the most economical heating plant.

The pier, 978 ft. long by 70 ft. wide, has a structural steel frame, with corrugated sheet iron walls and a wood roof deck. In insulating the walls, fibre board, 2 in. thick, was applied to nailing strips, bolted to the steel angle girts of the side wall construction. The board was not waterproofed in any way, as it was expected that none would be necessary, but the exposed inside face throughout was painted, and the board was carried down only to the top of the concrete curb surrounding the building, about 12 in. above the floor, so that there is no likelihood of its becoming wet or damaged when the pier floor is washed.

The manner of insulating the pier roof was dictated by the condition of the existing roof, the covering of which was not in good condition and would have required complete renewal in a year or two. Here, the old roof covering was completely removed, and a 2-in. special roof insulating board was laid continuously over the existing wood deck, and then waterproofed with a new built-up roof covering. In this building alone, the wall insulation amounted to 26,230 sq. ft., and the roof insulation involved an area of 57,050 sq. ft.

In addition to an estimated economy in fuel consumption through the use of insulation in the pier, there were other factors which had to be taken into consideration and which weighed heavily in favor of insulating the structure. One of the most important of these was the general belief that if the building was not insulated, there would be extreme difficulty in heating it during extremely cold weather, almost regardless of the size of heating plant installed, because of the excessive heat losses that would have occurred. Another important consideration was the fact that floor space on the pier is at a large premium, and it was known that a larger heating plant would have required the use of additional floor space, which could not readily be spared. Combining all of these factors, the road feels more than justified in the insulation of this structure, and is confident that, in addition to any savings made in plant and heating cost, it will be protected against those damage losses which might have resulted if the construction decided upon had been inadequate to keep the pier above freezing temperatures under even the most severe conditions.

The Baltimore & Ohio has not employed thermal insulation in its various buildings principally upon the basis of the savings in fuel to be expected. As a result, it has made no attempt in the separate buildings to determine carefully the fuel savings to be brought about through the use of insulation, or the actual return on the investment which might be expected through the use of this material.

Where no heating was involved, the primary consideration was to avoid the disadvantages of condensation, and to afford a thoroughly practical manner of waterproofing the roof decks, while in the case of most of the heated buildings or areas insulated, the primary considerations were patron and employee comfort, which would not have been possible without excessive heating costs. That these ends have been accomplished in the case of each building insulated is readily agreed to by every one concerned, and in each case at relatively small expense over the cost of uninsulated construction.

The use of building insulation on the Baltimore & Ohio has been largely under the direction of the construction department of the road, of which H. A. Lane is chief engineer and L. P. Kimball, engineer of buildings.

Commission Issues Sinking Fund Study

WASHINGTON, D. C.

POINTING out that the significance of the railroads' debt-reducing efforts through the medium of sinking funds "is actually much less than might be inferred," W. H. S. Stevens, assistant director of the Bureau of Statistics of the Interstate Commerce Commission, in a comprehensive 131-page report entitled "Railroad Sinking Funds and Funded Debt," has suggested that a revised railroad amortization policy be adopted which would provide for unconditional payments into sinking funds completely to offset new borrowings. Although the report was issued by the Bureau of Statistics, it was prepared by Mr. Stevens assisted by Ezekiel Limmer, and the bureau points out that the conclusions reached by the authors represent only their own views and have not been passed upon by the commission.

Fifty-one Roads Studied

The study deals with sinking fund arrangements of 51 major class I railroads of the country and the statistics presented are as of the end of the year 1935. It is explained that the study was initiated at the end of 1936, and that the latest data available for most of the tabulations were as of the end of 1935.

The report begins by observing that covenants requiring unconditional payments to the sinking fund apply to less than 8 per cent of the total sinking-fund debt and those requiring the sinking-fund payments to be devoted exclusively to debt redemption to less than 46 per cent. Covenants applying to the remainder permit the sinking-fund payments to be used partially or wholly for property investment instead of redemption, the report points out.

Sinking funds may not be very effective either in reducing funded debt or corresponding interest charges, it is argued, because the size of the debt and charges depends not only upon how much debt is being amortized but also upon how large a volume of new obligations is being more or less simultaneously contracted.

Would Relate Funds to Borrowing Policy

"A sound and consistent policy of debt amortization," concludes Mr. Stevens, "therefore, would seem to demand that sinking fund payments should be more definitely related to the accompanying borrowing policy than has hitherto been true. In general, the less attractive borrowing appears to be, the less desirable it will be to borrow. Advantage may be taken of this fact in amortization policy. Sinking fund payments may be varied in accordance with the expansion of borrowing, thereby tending to retard the increase of debt as well as produce an earlier net reduction in that debt and corresponding interest charges. So far as practicable the sinking fund payments should be so related to additional borrowing that redemption would be stepped up more or less automatically as borrowing increases."

The study goes on to say that any such adjustments of amortization to borrowing policy, however, should be made by translating the requisite sinking fund payments into terms of percentages of net earnings.

Plan Would Apply to Any Funded Debt

"This plan of offsetting increasing borrowing by increasing redemption is believed sufficiently flexible to be adapted to practically any funded debt and borrowing situation regardless of whether it is desired to redeem all additional new borrowing, only a part of it, or all or a portion of the new borrowing plus all or some portion of any previously contracted debt when the latter is refunded," asserts the report. "The plan not only renders the sinking fund policy more logical from an amortization point of view but also lends greater exactitude and precision to that policy by making possible a predetermination of the amount of debt to be left outstanding at the end of any selected period of time under any sinking fund indenture regardless of how rapidly or how slowly borrowing occurs thereunder. Finally, the total debt and borrowing under all indentures can be more satisfactorily analyzed with a view to determining the proper amortization requirements to be applied to any new borrowing or refunding issue in the light of the company's amortization and borrowing policy as a whole."

It is further pointed out that comparing assumed annual sinking fund payments of one per cent (nonaccumulating) of the debt outstanding at the end of each year with the total increase in funded debt from 1911 to 1930, the railroads would theoretically have redeemed $2,340,525,000 of funded debt at the same time that they borrowed $2,696,806,000. "In other words," concludes the report, "the borrowing which the railroads actually did during this period would have exceeded the amount of debt redeemed had a sinking fund equivalent to one per cent of the funded debt outstanding at the end of each year been in operation."

Conclusions

After devoting 17 chapters to the history of railroad sinking funds and funded debts and their present status, the report reaches the following general conclusions:

1. The terms and conditions of the sinking funds of the 51 large class I railways fail to indicate significant or important progress in debt redemption.

2. All sinking-fund payments should be devoted strictly to the redemption of debt. The policy of investing sinking-fund money in physical property will neither redeem debt nor reduce interest charges. It thus lends itself to the perpetuation of the debt instead of its extinction.

3. Investment of sinking-fund money in sinking-fund debt renders the amount of debt amortized independent of subsequent market fluctuations. Investment in securities other than sinking-fund debt may result in subsequent profits or losses, semispeculative or otherwise. It is undesirable from the point of view of a sound and consistent amortization policy with possible qualifications for prior lien debt.

4. Even the investment of sinking-fund money in prior lien debt should probably be restricted to periods when the reduction of interest charges effected thereby would exceed that obtained by the purchase of sinking-fund debt.

5. If investment in other securities than sinking-fund or prior-lien debt is to be permitted at all, complete control of the investments and investment policy should be vested in independent trustees.

6. The use of purchase sinking funds without a call alternative requires provision for alternative investment either in physical property or in securities other than sinking-fund debt. The preceding conclusions would imply that all sinking funds should require bonds to be called for the sinking fund as the sole alternative to purchase. This also is logical from the point of view of a consistent amortization policy.

7. Premium purchase and call prices for the redemption of sinking-fund debt tend to result in higher initial selling prices for securities than par purchase and call prices. Unless the premium lifts the initial sales price to a point where the effective rate of interest will be less for the premium than for the par issue, assuming that the maximum redemption price is paid in all cases, there can be no certainty that the effective rate of interest and cost of redemption will be lower for the premium issue.

8. Sinking-fund payments should be set in terms of a fixed proportion of the net income. This not only tends to insure that all such payments will be made out of the surplus of revenues over expenditures but also adjusts the amounts payable in each year to the corporation's ability to pay.

9. The indicated low productivity of railroad capital, particularly in recent years, suggests that nonaccumulating sinking funds are preferable, at least for the present, to accumulating funds. In general the accumulating fund should probably be employed only when the productivity of railroad funds is relatively high as compared with the interest rate on the borrowed funds and then only if the maturity is relatively short term. If the capital productivity is not appreciably in excess of the interest rate on the borrowing and the maturity is relatively long term, the nonaccumulating fund is more logical.

10. The size of the funded debt and interest charges obviously depends not only on the rate at which debt is redeemed but also on the rate at which additional debt is more or less contemporaneously created. For sinking funds effectively to reduce funded debt and interest charges it is necessary that the volume of additional borrowing shall not more or less constantly exceed the amortization. Otherwise, in spite of the sinking fund, debt and interest charges may continue to expand for an indefinite period depending on the respective rates of amortization and borrowing. This suggests that a sound amortization policy through sinking funds should relate the amounts of debt amortized to the additional borrowing by stepping up the sinking-fund payments more or less automatically as additional borrowing occurs. This adjustment can be effected in a variety of ways. In the case of bonds in series where maturity dates can be varied, it may, for example, be accomplished by progressively shortening the maturities as additional borrowing is done. In the case of bonds authorized with a single maturity date where the authorization exceeds the issue, sinking-fund payments necessary to redeem all or any predetermined portion of the debt may be recomputed when additional borrowing occurs in terms of the unredeemed portion of the issue plus the added borrowing and the time of the last increment of borrowing to maturity. Existing sinking funds do not provide similar adjustments except in a very limited degree.

How Car Conditions Affect Safety*

Arch-bar trucks, couplers and draft gears, safety appliances, AB brakes and general car design are discussed

By W. J. Patterson

Director, Bureau of Safety, Interstate Commerce Commission

UNDER existing law it is not a function of the Bureau of Safety to enter into the underlying engineering and design of railroad cars, but in the light of actual service results I shall discuss some of the features of the subjects of car construction and maintenance.

Vast Improvements in Car Construction

The reasons for and the results from the vast improvements which have been accomplished in car construction are quite apparent as we look backward and compare the speed, length and tonnage of trains, the total volume of traffic and also the reduced record of casualties sustained by employees in the performance of this necessary national service. The present generally recognized standard freight car has cast-steel truck frames, the design and composition of which must conform to definite A. A. R. specifications which from prior experience and appropriate tests have been determined to provide safe operation under the stresses encountered in normal service. The wheels, journals, bearings, brake rigging, and other parts, have been improved over the years to meet changing conditions and to correct deficiencies disclosed by actual service. Progressive action has been under way for a considerable time further to improve freight-car trucks by the use of non-harmonic springs to dampen the vertical oscillations which have become a factor in damage to lading, as well as in safety, at the greatly increased freight-train speeds which are now common.

Within the last 15 years the increasingly severe service imposed on freight cars was exacting such heavy maintenance expense and resulting in such alarming increase in dangerous failures of the old-style arch bar trucks that in 1927 the A. R. A. adopted a rule requiring cars built new after July 1, 1928, to be equipped with cast-steel truck frames meeting A. R. A. specifications. Other rules, further prohibiting the use of arch-bar trucks, were adopted in 1928 and 1929, tending gradually to eliminate them, and in 1930 the A. R. A. rule was promulgated prohibiting arch-bar trucks on cars in interchange after January 1, 1936. This date was later extended from time to time, the last extension being to July 1, 1939. In my reports upon accidents caused by failure of arch-bar trucks covering a period of several years it has been repeatedly recommended "that until arch-bar trucks can be eliminated from service, a reduction sufficient to guarantee safety of operation should be made in the permissible load limit on cars equipped with such trucks."

Within the last few weeks I have received a report from one of my field inspectors who noted that on two cars having arch-bar trucks on the line of a large carrier the trucks appeared to be distressed, and by actual weighing it was disclosed that both cars were overloaded, one of them 9,000 lb. above the load limit specified for the car in A. A. R. rule 86. Such practice cannot be justified on any grounds, as it clearly constitutes a hazard to the lives of employees and travelers, and courts extensive property damages by creating conditions likely to lead to failure of these obsolete trucks concerning which so many warnings have been given by the A. A. R. as well as by the Bureau of Safety.

Further Extension of Arch-Bar Truck Rule Not Expected

Car owners who were delinquent in setting up a systematic program to eliminate the dangerous, obsolete arch-bar truck, in accordance with the time schedule set up by A. A. R. rules, have been given exceptionally liberal extensions, particularly in view of the serious accidents frequently resulting from their use, and it is hardly to be expected that any further extension will be granted.

The underframe structure of cars provides the principal strength element to withstand pulling strains and buffing shocks which occur at the time of draft in train movements. Commendable improvements have been made in recent years in the elements which compose the underframe. The coupler has been redesigned, greatly strengthened and made standard for all cars in interchange, and important features essential to draft gears have been made standard. Comparatively few old-style couplers are now in service; 5-in. by 5-in. shanks are required to be eliminated on interchange cars by January 1, 1940, and 5-in. by 7-in. shanks by January 1, 1942. Adherence to this A. A. R. provision will eliminate some of the causes of trains parting which have resulted in accidents and casualties.

From a review of the records, it is evident that in recent years accidents due to trains parting have been entirely too frequent. The speeds at which long freight trains are now operated make break-in-twos a serious hazard, not only to the individual train and its crew but a potential hazard to other trains on multiple-track lines. Sudden emergency brake action on long trains, due to parting of the train, has in numeorus instances resulted in buckling the train and fouling adjacent tracks. In many cases this has occurred directly in the path of trains on adjacent tracks, some of which were passenger trains, and the results very disastrous. It therefore appears to be of outstanding importance that draft gears, their attachments and supports should be given the greatest possible attention, both in design and maintenance, to prevent train separations. I have said a great deal on this subject in the last few years because in my opinion it was justified and essential to safety.

In addressing the Railway Club of Pittsburgh on

* Abstract of an address presented before the Northwest Carmen's Association on April 3, at St. Paul, Minn.

November 21, 1935, on the subject of "Some Improvements in Design and Maintenance of Railroad Equipment," and again in addressing the convention of the Car Department Officers' Association at Chicago, on September 29, 1937, on the subject of "The Relation of the Car Department to Safety and Efficiency of Railroad Operation," I reviewed the draft-gear situation in considerable detail, citing various instances of hazard revealed by investigations conducted by the Bureau of Safety. It is not necessary to dwell at length on this subject, but because of inadequate draft gears, attachments and supports, in recent years corrective action has been taken by the A. A. R. to relieve the situation. Definite provisions have been set up to eliminate excessive free slack which is a hazard to train operation; the list of obsolete gears has been extended to include many more gears that were inefficient; already some improvement is apparent as a result of the improved maintenance, the elimination of many inefficient gears and the use of more standard certified gears.

Periodic Check of Draft Gears and Associated Parts

I have strongly advocated a thorough, periodical check and reconditioning of draft gears, attachments and supports, and stenciling of cars to show where and when this work was done, in the same manner as for air-brake cleaning and journal-box repacking. Such action is being followed by a number of railroads and I believe it should be a uniform practice. In many instances our investigations have revealed that the supporting attachments did not retain the coupler within the prescribed limits of standard height when it was stretched out on a hard pull. Obviously such a condition is not within the requirements of the safety appliance law. A coupler which will fall below 31½ inches, or that has nothing to restrain it from being raised to a height of more than 34½ inches when in stretched position, has a vertical movement which is a potential hazard for a slip-over of knuckles at any time, although it may be within the limits of standard height when inspected at rest. Correction of this condition by appropriate A. A. R. action is now pending.

In general, the strength of center-sill construction of steel and steel-underframe freight cars appears adequate for normal service; accidents have not demonstrated anything to the contrary. This is evidently due to the fact that many years ago the A. R. A. set up a minimum cross-sectional area for center sills which was mandatory for cars in interchange service. The new type of center sill, redesigned by the A. A. R. in recent years, reduced the cross-sectional area, but extensive and convincing buffing and extensometer tests were carried out before it was approved and adopted as standard by the A. A. R. The recent tendency toward standardization of freight-car construction appears to be a very desirable trend toward greater utility, durability, safety and economy. It seems unquestionable that the desired results in each of these primary objectives can best be accomplished by combined efforts of engineering ability through appropriate committees in the A. A. R. Standard designs are now provided by the A. A. R. for box and automobile cars, hopper cars and refrigerator cars, with permissible alternatives on certain features to allow for varying opinions on many devices but at the same time providing a standard of utility, strength and safety for service, and these standards are always susceptible to further improvement in a uniform, orderly manner.

Standard construction of different classes of cars also provides greater uniformity of safety appliance equipment required by the order of the commission dated March 13, 1911. In that order requirements for safety appliances are set up for freight cars of the following specified classes: Box and other house cars; hopper cars and high-side gondolas with fixed ends; drop-end and high-side gondola cars; fixed-end low-side gondola and low-side hopper cars; drop-end low-side gondola cars; flat cars; tank cars (three types); caboose cars with platforms; caboose cars without platforms.

Provide for Safety Appliances in New Car Designs

It frequently occurs that when new cars are acquired by some carrier in one of these specified classes, the cars include some special feature of design which has been specified by the individual carrier. After the particular idea is incorporated into the car design, the matter of fitting safety appliances to the car to conform to the requirements for that specified class is necessary. Often it is found that the requirements of the order can be nearly met, but not quite, and then I am furnished prints and a letter showing how nearly the application conforms to the specifications, and requesting me to approve the application as being the nearest possible arrangement to that specified by the order. In other words, although the cars may plainly belong to one of the classes specified in the order they have been constructed without due regard for the application of the safety appliances and it is then contended that the construction does not permit of exact compliance with the order.

Although the Bureau of Safety is charged with administration of the Safety Appliance Act and orders of the commission relative thereto, I am no more authorized to vary from established requirements than is the carrier. The order is as clear to the designer as it is to me and needless to say variation from the specified requirements can receive no sanction from me. The requirements for safety appliances for each class of car are specified; they can and are being fully conformed to in A. A. R. standard designs and by most builders, and it is, therefore, the part of wisdom to make provision for these appliances in designing new equipment in any of the classes specifically covered in the order.

In recent years extensive experimentation has been carried on in both materials and methods of construction, largely aimed to reduction of the tare weights of cars. This prevails in respect to both freight cars and passenger train cars. The attempt to reduce the light weight and to increase the ratio of load to the total weight of freight cars appears to be worthy of extensive experiments and tests by both car builders and carriers, so that reliable data may be established leading to final action by the transportation and mechanical divisions of the A. A. R. as provided for in Rule 3, before such cars are permitted to be offered for regular interchange service.

The application by welding of safety appliances, such as grab irons and ladders, has been advocated by some builders. It should be carefully noted, however, that the order of the commission definitely provides that certain appliances shall be secured by bolts or rivets. This requirement should be observed unless and until the order is changed in the manner therein prescribed. There are those who contend that welding is as good or even better than rivets or bolts, and there are others who take the contrary view. It appears that the whole car, exclusive of these relatively small items of safety appliances, provides a sufficiently large field for all experiments and tests of welding, without applying this method to safety appliances.

In recent years there has been a marked tendency toward lightweight, streamline passenger train cars. The

term "lightweight" has no definite meaning, but the use of the term has become common in connection with cars constructed largely of various alloys of recent development. By the use of high-tensile alloy steels and other materials in these newer designs, the weight of such cars has been materially reduced in general. In construction of this character there is a definite trend toward a lower center of gravity, and, particularly because of greatly increased speeds, this seems highly desirable.

During recent years when the development of this so-called lightweight streamline equipment for passenger-train service has been in progress, I have on various occasions stressed the necessity for maintaining that high degree of safety which has been developed by years of experience in steel passenger-car construction.

In September, 1938, a serious collision occurred in California in which four cars of this general type were involved, being intermingled in passenger trains with heavier, standard type cars. It became my duty to report to the Commission the facts disclosed by an investigation of this accident. The facts as to what occurred were set forth in my accident investigation report No. 2294. Considerable comment has resulted, some of which inferred that the report on this accident was a drastic criticism of this type of equipment in general and tended to discredit it or to raise a doubt as to the propriety of its use. The report is clear to anyone actually reading it. It presents no assumptions of what might have happened, but is confined to what actually occurred according to the evidence. The fact that two of the so-called lightweight cars were the most seriously damaged is shown and, likewise, the fact that two other cars of the same kind came through the accident without any damage.

This investigation clearly brought out the fact that in the development of this type of equipment the broad powers and the extensive engineering ability of the whole railroad industry, as concentrated and organized in the Association of American Railroads, have not been utilized in the same manner as in relation to freight cars, for which A. A. R. Rule 3 requires that new and untried types shall be approved by the Transportation and Mechanical Divisions before they are offered in regular service. There is no apparent reason why passenger cars of new types, for unrestricted service as in this case, should not likewise be approved by the A. A. R., and this would undoubtedly call for appropriate tests, as pointed out in my report.

In past years several disastrous accidents involving passenger trains have served to point the way to improvement in standard steel cars to provide greater safety and, no doubt, this unfortunate accident involving these newer type cars has pointed the way to improvement. Already definite requirements which embody decided improvements are being formulated for passenger cars for unrestricted service. However, experience of this character is extremely costly.

Higher Speeds Emphasize Importance of Efficient Brakes

Another important feature of car construction is the matter of efficient brakes to control trains safely. This feature has taken on greater importance as train speeds have so greatly increased. The Interstate Commerce Commission, on its own initiative in 1922, instituted proceedings to inquire into the adequacy of power brake systems used on locomotives and cars, and on July 18, 1924, issued a report in which it was stated that improvements in the operation of power brakes were essential and must be effected. The report also set up tentative specifications and requirements for power brake systems deemed necessary to provide increased safety in the control of trains. The commission did not issue a formal order covering the essential improvements which it stated must be made, but left the matter open pending the development of this matter of major interest to all railroads by the A. R. A. A thorough survey of the problem was deemed advisable and by agreement with the commission, the A. R. A. conducted extensive laboratory and road tests, in which the commission and the brake manufacturers joined. These investigations and tests resulted in the adoption by A. R. A. in 1933 of revised specifications and requirements for power brakes and appliances for operating power-brake systems for freight service. An A. A. R. rule was then made effective which required that all cars built new on or after September 1, 1933, should be equipped with air brakes meeting these specifications and a note was appended to the rule stating that the AB design of freight brake equipment meets these requirements.

The A. A. R. later revised Interchange Rule 3 (a) (4), effective January 1, 1935, requiring that on and after January 1, 1945, all freight cars in interchange service must be equipped with air brakes meeting the requirements of the A. R. A. specifications for air brakes adopted in 1933. To carry into effect the general adoption of the improved power brake system, which was the objective sought by the commission in 1924, the A. A. R. set up a mandatory rule requiring all cars in interchange to be equipped with the improved standard devices within a period of ten years, ending January 1, 1945.

Member roads are, in general, making reports to the A. A. R. as required by A. A. R. Rule 3 (a) (4). The A. A. R. has filed the information thus reported with the I. C. C., and the commission is thereby currently informed of progress made in the application of improved brakes.

AB Brake Installations Are Behind Schedule

The accompanying table clearly discloses that this important improvement, directly initiated by the commission, is not progressing as scheduled by the A. A. R.

Status of AB Brake Installations as of December 31, 1938

Car owners reporting	Number of owners reporting	Number of cars owned	Number of cars equipped with such brakes	Per cent
Railroads	193	1,849,142	243,945	13.19
Private cars	194	280,995	22,097	7.86
Total	387	2,130,137	266,042	12.49

The ten-year period was intended to allow ample time for an orderly change to provide the much needed improvement for safety at the increased speeds with longer trains and greater tonnage. As shown by this report, however, during four years, or 40 per cent of the ten-year period allotted for making this improvement, only 12.49 per cent of the freight cars in interchange service have been equipped with the present standard air brake. Only 14 railroads and 22 private car lines are shown as having 30 per cent or more of their cars so equipped. The large majority are, therefore, far behind the schedule. The disturbing part is that 107 railroads and 117 private car lines show no cars as yet so equipped. It may become necessary for the commission to take further action to expedite the improvements which it declared in 1924 to be essential.

Examples of the advantages of standardized construction are being clearly demonstrated by standard cars, safety appliances, trucks, air brakes, couplers, draft

(*Continued on page 671*)

Dixon to Head Lima Staff

Sales and engineering vice-president elected president of Lima Locomotive Works succeeding S. G. Allen

John E. Dixon

JOHN EDWARD DIXON, vice-president of sales and engineering of the Lima Locomotive Works, Inc., has been elected president of the company, with headquarters at New York, succeeding Samuel G. Allen. Mr. Dixon has been Lima's vice-president in charge of sales since reorganization of the company in 1916, vice-president of engineering since 1934 and head of the Shovel & Crane division since 1936. Mr. Allen, who succeeded Joel S. Coffin as president in 1931 and chairman of the board in 1935, will continue to serve in the latter post.

The new president of Lima Locomotive Works was born on September 11, 1877, at Milwaukee, Wis. After attending grade and high schools, he studied at the University of Wisconsin, from which he was graduated in 1900 with the degree of B. S. in mechanical engineering. Shortly after college he began his career in the locomotive building business as an apprentice at the Brooks Works of the American Locomotive Company, Dunkirk, N. Y., later becoming, in succession, shop foreman, traveling engineer, draftsman, and general inspector. From 1905 to 1907 he was assistant to manager and manager of the Atlantic Equipment Company, an Alco subsidiary manufacturing excavating and dredging machinery and dealing in second-hand locomotives, and from 1907 to 1916, salesman and assistant manager of sales of the American Locomotive Company.

Mr. Dixon left the staff of American on January 1, 1916, to become vice-president of sales of the reorganized Lima Locomotive Works. In 1934 he assumed in addition the duties of vice-president of engineering, and, in 1936 his responsibilities were again broadened when he took over the direction of the Shovel & Crane division of the company.

The business of locomotive design and manufacture has claimed Mr. Dixon for the 39 years since his graduation from college. And even before that he was deeply interested in the "business end" of a railroad train, he recalls; always wanted to get close to engines and selected his courses in school and college with his future jobs in mind. As for the outlook, he believes that a spurt in motive power buying is dependent only upon the right kind of remedial legislation in Washington. As a steam locomotive man he is enthusiastic about the future of the type and promises that the railroads are going "to see some changes" in the products offered to them in the future.

The Lima Locomotive Works has a lineage of just 70 years. It is a direct descendent of Carnes, Harper & Co., organized in 1869 in Lima, Ohio, for the purpose of manufacturing saw mills and general mill machinery. In 1877 its activities were enlarged and the name changed to Lima Machine Works, which built its first locomotive in 1879. In 1892 the name was changed to Lima Locomotive & Machine Co. to describe more adequately activities of the company in locomotive manufacture. In 1901 the plant was moved to its present location on South Main street. At the same time it was consolidated with the Lima Car Company, whose products it continued to build for several years. In these early days the company's activities in locomotive building were concentrated largely on the building of the so-called Shay geared locomotive designed to meet operating conditions confronting the lumber industry in railroad operation. Lima continued to expand the market for its geared locomotive in industrial plants, mines and quarries and plantations both for domestic and export service.

In 1912 the company decided to go into the business of manufacturing direct-drive locomotives for general railroad use; changed its name to the Lima Locomotive Corporation and spent $2,000,000 expanding the facilities of its plant. In 1916 control of the company passed to the late Joel S. Coffin of New York City and associates and the name was changed to Lima Locomotive Works, Inc. In 1922 the capacity of the plant at Lima was practically doubled. It now spreads over approximately 58 acres and consists of a seven-story office building and 26 important plant buildings having a total floor space of 701,339 sq. ft. and containing 6½ mi. of track.

When operating at capacity Lima employs approximately 2,500 persons and is equipped for the manufacture of the largest-sized locomotives. Seeking to expand its activities the company acquired the management and ownership of the Ohio Power Shovel in 1928 and in 1935 consolidated the wholly-owned subsidiary as the Shovel & Crane division of Lima Locomotive Works, Inc.

While Lima is not the largest of the three steam locomotive builders in the country (average annual output estimated at 20 to 22 per cent of the United States total production) it has for the past two decades been responsible for many of the improvements that have virtually revolutionized steam power and rendered obsolete the steam locomotives of even 20 years ago. Chief among these was the development of the so-called Lima A-1, "super-power" type in 1925 featuring among other things a wide fire box supported on a four-wheel trailer truck, cast steel cylinders, tandem main rods, and a limited cut-off, characteristics which have since been widely adopted throughout the country.

Financially, Lima rests on a sound basis. It retired first mortgage bonds, its only funded debt, in 1922 and at the same time converted its $100 par common stock into no-par common stock, since which time it has had no funded debt, no bank loans and but one class of stock. Current assets at the close of 1938 were $6,494,803 and current liabilities $229,990. In 1937 it enjoyed a net profit after all taxes of $1,019,983 and paid two dividends of $1 and $1.50 per share, respectively, totaling $527,643, on the outstanding 211,057 shares of capital stock.

Changes in Railway Unit Revenues and Expenses

WASHINGTON, D. C.

CHANGES in railroad unit revenues and expenses during the period from 1915 to 1937 are shown in a series of tables recently made public by the Interstate Commerce Commission's Bureau of Statistics. The compilation is Statement No. 399, and it brings through 1937 the data published in 1931 as Statement No. 3152; its stated purpose is "to afford a convenient survey of the changes over a long period of years in the average revenues, expenses, and net railway operating income per train-mile, per car-mile, per net freight ton-mile, per loaded freight car-mile, and per passenger train car-mile."

The unit revenues and expenses are given in both absolute and relative figures, the latter showing the percentage relation of each year to the average of the three-year-period ended June 30, 1917—the "test period" which the Transportation Act of 1920 set up in connection with financial settlements between carriers and the government. The expense per passenger-mile, as distinguished from the passenger-train car-mile, is not shown "because of the lack of an annual subdivision of passenger train expenses among passenger, mail and express services." To assist in interpreting the expense averages, tables showing such items as average haul, average car-load and average train load have been added.

The table showing the operating expense per train-mile for all services gives a test-period figure of $1,945. This rose to $4.920 in 1920, fell to $3.044 in 1933 but increased to $3.527 in 1937, which is 81.3 per cent above the test period average. In the test period the railways accrued 13.1 cents in taxes per train-mile. This average increased to 35.4 cents in 1937, an increase of 170.2 per cent. The test-period revenue per train-mile was $2.830; this average rose to $5.295 in 1929, and in 1937 was $4.519, an increase of 59.6 per cent. The net railway operating income in 1937 was 63.8 cents per train-mile compared with 75.4 cents in the test period, or 84.6 per cent as much.

During the period under review the average haul of freight on each railroad increased from 165.0 to 197.6 miles, the average journey per passenger from 34.8 to 49.6 miles, and the average revenue load per freight train increased from 536 to 724 tons. In the test period 51.4 per cent of the train miles were freight and 48.6 per cent passenger, but in 1937, the freight train proportion was 54.6 per cent and the passenger 45.4 per cent. In the test period, 13.3 per cent of the car-miles were in passenger train service, compared with 11.5 per cent in 1937. The ratio of sleeping, parlor, observation and dining car-miles to total passenger train car-miles rose from 27.4 per cent in the test period to 35.4 per cent in 1937. These changes in physical operations, the Bureau says, "affect the comparability of the averages per train-mile and per car-mile over a period of years somewhat, but do not deprive them of their significance as showing the general tendencies."

In the test period the railways earned 7.866 cents net per passenger train car-mile above taxes but before interest; in 1937 they lost almost exactly the same amount. In this computation the passenger trains are charged with their use of the roadway, and there was not an actual out-of-pocket loss. The progressive decline in the profits of the passenger service after 1917 is shown in one of the tables, which also shows that in the freight service, the ratio of net to gross "was almost as good in recent years as in the test period." The revised rules for separating freight from passenger expenses which became effective January 1, 1936, the statement adds, "do not materially affect these comparisons."

Per ton-mile of freight the revenue has increased since the test period in about the same ratio as the expense when all districts are taken together.

None of these cost figures take account of increased investment since the test period. They cover only operating expenses, taxes, and rentals.

"To guard against confusion," the Bureau's preface to the tables says in closing, "it should be stated that the revenue per net freight ton-mile shown herein is higher than that given regularly in other publications because, in the present tables, the total of the operating revenues apportioned to freight services, including switching and miscellaneous revenues, is used as the dividend, while ordinarily to get the revenue per ton-mile, the freight revenue account alone is divided by the ton-miles. It was desired in the present statement to give an all inclusive view of revenues and expenses on a unit basis."

AN ALL-TIME HIGH IN PASSENGER TRAFFIC was enjoyed by the New South Wales railways during the fiscal year ending June 30, 1938. This system is the only one of the eight Australian railways which earned net railway operating income during the year. For 12 years prior to the fiscal year 1936-1937 the New South Wales road piled up net railway operating deficits. The Queensland railways also enjoyed a record year in both freight and passenger traffic. Train miles run, gross ton miles, and freight traffic earnings were all greater than in any previous year. Net railway operating income showed a decline of £136,963, however, due in part to additional expenses of £161,602 accruing from an increase in the basic wage rate.

Hearing on Senate Transport Bills

Wheeler pushes forward to conclude consideration of S. 2009, his program's "key bill"

WASHINGTON, D. C.

SENATE interstate commerce committee hearings on S. 2009, the Wheeler-Truman version of a proper rewriting of the Interstate Commerce Act, entered the second week on April 10, Chairman Wheeler having failed to realize his expressed hope of concluding last Friday. Meanwhile, however, he has driven along with morning and afternoon sessions, and he announced on Tuesday that he was "definitely" going to conclude this week, "probably Thursday night."

As pointed out in last week's issue, S. 2009, the "key bill" of the Wheeler-Truman program, is receiving initial consideration, after which the hearings will continue for the consideration of S. 1869, which would amend the law relating to railroad reorganizations; S. 1310, which would give the Interstate Commerce Commission regulatory authority over the so-called "outside investments" of railroads; S. 2016, the holding company bill; and other pending measures dealing in one way or another with matters covered in the committee-of-six recommendations.

General Solicitor John E. Benton of the National Association of Railroad and Utility Commissioners, whose appearance was noted in last week's issue, completed his presentation at April 6's morning session when he objected to what he called S. 2009's failure to make clear the demarcation between federal and state authority over local motor carriers. Mr. Benton urged an amendment along the lines of S. 1512, which was recently introduced by Senator Minton, Democrat of Indiana, as noted briefly in the *Railway Age* of March 4, page 398. As reported in last week's issue a companion bill to this Minton proposal, which Mr. Benton said would "end all questions" about the matter, has been offered in the House by Representative Mapes, Republican of Michigan.

Rough Going for Water Regulation Opponent

The first of the witnesses to appear in opposition to regulation of water carriers—H. A. Feltus of Minneapolis, Minn.,—encountered rough going at the hands of Chairman Wheeler and Senator Reed, Republican of Kansas, when he identified himself as the representative of numerous farm organizations with a total membership of 600,000. Senator Wheeler interrupted the witness' listing of his principals to charge that the farm organizations "are not paying you" and to suggest that Mr. Feltus was "really" representing shippers. The witness denied this, but the chairman went on to say that "so many" persons come to Washington claiming to represent farmers that he wanted to have the record show who was paying Mr. Feltus. After a while the Senator got what he was after in this connection; when Mr. Feltus finished listing the farm organizations he revealed that he is "on a regular salary basis" as a representative of the Upper Mississippi Waterways Association; the Upper Mississippi & St. Croix River Improvement Commission; and the City Council of Minneapolis. The first of these organizations, Mr. Feltus said, is supported by voluntary contributions of members; the second receives appropriations from the state of Minnesota; while the third is supported by the city of Minneapolis.

Meanwhile amidst his listing of the farm organizations, Mr. Feltus had come to one in Montana. Chairman Wheeler knew the group, and its head, whom he was sure had neither seen the bill nor knew or could know what was in it. The chairman went on to assert that the witness was representing "shipping interests" in Minneapolis, adding "you've wired these others and asked them to let you represent them." Nevertheless the witness continued to list farm organizations, bringing from Senator Reed the observation that in his judgment it is "unfortunate" that somebody goes to these farm organizations and says that a particular bill is going to harm them. "Of course," Senator Wheeler interjected, "these farm organizations never heard of this legislation until somebody told them one side of the story—that the legislation was going to ruin them."

Senator Schwartz, Democrat of Wyoming, asked if the witness had corresponded with his principals on S. 2009; and Mr. Feltus replied that he had not, although he had a "very definite understanding" with them on "certain phases of legislation." More specifically, he has been instructed to oppose any regulation of water carriers and any attempt to repeal the long-and-short-haul clause of the Interstate Commerce Act.

Wheeler "Weary" of Attempts "to Impress" Committee

It was at this point that Mr. Feltus got around to listing the above-mentioned three organizations from which he receives his salary, whereupon Chairman Wheeler observed that he gets "weary" of various persons "trying to impress" committees with the idea that they're representing organizations that don't know much about the matters at issue. He recalled in this connection what he said he had learned at past hearings on repeal of the long-and-short-haul clause—that witnesses claiming to represent "labor" were having their expenses paid by the railroads. It's all "nauseating" to Mr. Wheeler; and such presentations do not "impress" him. He later said in the same connection that such activities bring "government by propaganda." Nevertheless Mr. Feltus insisted to Senator Reed that he represented the farm organizations; and the Kansan replied that he would like to see the witness' correspondence with such organizations, and the "propaganda" used in getting their authorizations. Mr. Feltus denied that any "propaganda" had been employed.

Getting on to his statement the witness said that passage of legislation to regulate water carriers would be tantamount to a declaration to taxpayers that Congress has spent all it can on waterways for navigation, and that those waterways can no longer be used in the interests of producers and consumers. His talk about "low cost" water transport was interrupted by Chairman Wheeler who asserted that the Standard Oil Company uses the Mississippi "a great deal," and went on to ask if the witness could cite one instance wherein such use of the river had benefited a Northwest consumer by "as much as one-tenth of a cent" reduction in the price of gasoline. The witness could cite no such instance; and the

chairman next asked wherein consumers have benefited through a reduction of as much as "one-tenth of one cent" per pound in the price of steel by reason of the United States Steel Corporation's barge operations. The witness answered by talking about how the waterways had put Pittsburgh steel into Southern markets in competition with import products. Whereupon Senator Wheeler was willing to "venture the assertion" that the steel companies have not made any price concessions based upon transport savings obtained through the use of the Ohio and Mississippi. Steel, cement, and "all these people," he went on, never pass the savings on to the consumer when they use these "subsidized rivers and barge lines;" and for Mr. Feltus he added that "what's true of them is true of your millers—the farmers don't benefit." He challenged the witness to show him where the ultimate consumers have benefited either.

Senator Minton brought out the fact that Mr. Feltus' "fundamental" objection to the bill went to the provisions for the regulation of water carriers, as the witness went on, as he did before the House committee, to say that his principals were not "anti-railroad," but they are "pro-transportation." "Economic or subsidized transportation?" Senator Reed asked; and Mr. Feltus replied that he meant transportation "as it is available today." To his next assertion that S. 2009 is a proposition that all the money spent on waterways be "scrapped," Chairman Wheeler came back to say that that "just isn't a fair statement and nothing like it can be read into the bill." The Montanan went on to cite again the provisions directing the I. C. C. to consider the inherent advantages of each type of transport; and to recall that the committee heard the same kind of testimony contending that the Motor Carrier Act would destroy the trucking industry. Yet, he added, the testimony of J. V. Lawrence, general manager of American Trucking Associations, Inc., who appeared on the previous day, as noted in last week's issue, was to the effect that the I. C. C. had been fair to the truckers.

"Special Interests" Want "Other Fellow" Regulated

It was Mr. Wheeler's further contention at this point that if one believes in regulation the "only fair thing to say" is that all agencies should be regulated alike; and if one doesn't believe in regulation the only logical position to take is that all agencies should be set free. If the latter were done, he asked, "How many boats do you think you'd have on the Mississippi?" adding that "special interests" don't want regulation for themselves—they want the "other fellow" regulated. Mr. Feltus' reply was that he was not representing "any water carrier;" and the chairman came back with: "Well, you're doing a pretty good job."

Getting back to his prepared statement the witness started to trace the history of inland waterway improvements, in which connection he had a lot to say about the decline of Minneapolis as a market for grain. The latter brought from Senator Reed a charge that Mr. Feltus was contending for "subsidies" to maintain Minneapolis as a market. The witness denied that the status of Minneapolis as a market was his chief concern; but the Kansas senator nevertheless insisted that Mr. Feltus was really representing Minneapolis, and had "in some way" secured proxies from the other organizations. Mr. Feltus insisted that the Minneapolis flour mills, having moved their equipment to other plants, no longer care whether the waterways are used or not.

Getting into regulation again at April 6's afternoon session, Mr. Feltus thought that "anyone the least bit familiar with transportation" knows that regulation increases costs. "Then," said Chairman Wheeler, "repeal the Interstate Commerce Act." But the witness was not discussing that, contending that such a proposal was not before the committee. Senator Wheeler disagreed, saying that "the whole question is before us." Whereupon Mr. Feltus suggested that the committee study the railroad problem and do what it would in that connection; but Senator White, Republican of Maine, did not see how that could be done intelligently without considering the effect on railroads of other forms of transportation. That was "exactly" what Mr. Feltus was "afraid of"——he fears the result would be the bringing of water rates up to the rail-rate level.

Nevertheless Chairman Wheeler agreed with Senator White, saying that the committee had to be interested in the "tarnsportation problem as a whole." But Mr. Feltus was not easily diverted to another subject—he came back with the suggestion that the railroads be prohibited from meeting water competition at any point. Chairman Wheeler thought that indicated a lack of interest in solving the problem from the standpoint of the general public, but Mr. Feltus preferred to call it a proposition to preserve for the public water transportation which is "more economical." The latter is what Chairman Wheeler thought was specified in the bill, but Mr. Feltus did not agree.

An argument on this point brought from Senator Reed a suggestion that the committee close up with the witness without further debate; but Senator Shipstead, Farmer-Laborite of Minnesota, insisted that Mr. Feltus be given "a chance." Whereupon the witness proceeded to put into the record various statements and speeches of heads of the farm organizations which he claimed to represent. He did this, he said, because of the contentions he had encountered to the effect that "these farmers don't know what this is all about." Mr. Feltus also objected to S. 2009's commodities clause, because he is unable to discover how anyone would be induced to invest in boats unless they are able to provide themselves with tonnage in one direction to balance the operation. To do this, the witness insisted, they must be able to handle tonnage in which they or their affiliates and parent companies are interested.

Taxpayers "Invested" in Waterways

In concluding, Mr. Feltus said that the waterway money has been "invested" by the taxpayers, and he doesn't think there should now be any "breaking of faith." He added that if, as the committee members charged, the benefits of water transportation are not being extended to consumers, that is a matter for Congress to look into.

William H. Day, chairman of the executive committee of the National Industrial Traffic League, read a prepared statement of the League's position on the Wheeler-Truman bill. The committee-of-six bill before the House committee, Mr. Day said, is "less acceptable" than S. 2009 in which the League finds "many meritorious features." It is not opposed to "an orderly restatement" of Parts I and II of the Interstate Commerce Act, but it feels that "most" of S. 2009's provisions are of "long range character, not calculated to give any immediate benefit to railroads or other carriers;" also, that "it would be impossible during the remainder of this session to give proper consideration" to recodification.

After next listing what the League has found to be "Underlying Causes of Financial Plight of Carriers," Mr. Day proceeded to state its objections to hasty recodification. In this connection he objected to any policy

which "has for its object controlling the supply of transportation by artificial measures," although he added that the League is opposed "to promotion by artificial stimulants of any mode of transportation which cannot be self-supporting under fair and reasonable conditions." Also, the witness contended that throughout the recodified act "will be found many changes of language or phraseology, apparently resulting from or incident to the rearrangement and consolidation of the sections of the law, but many of these changes in phraseology may be found on further study to have a far different effect than one would credit to them on first reading of the bill, or was intended by the authors."

Furthermore, Mr. Day continued, the League prefers a declaration of policy stated in the language approved at its February 23 meeting in Washington, D. C. In this suggested language Chairman Wheeler noted the phrase "to preserve and promote private ownership and operation of all forms of transportation," taking it as his text for an observation that if conditions continue as they are, it won't be Congress that will be looking for government ownership of railroads, but security holders anxious "to unload on the government." S. 2009's rate-making rule, being the same as the present one except for the application to all forms of transport, is "satisfactory to the League."

The N. I. T. League and Water Carrier Regulation

The question of regulating water carriers, Mr. Day said, "is one of the most controversial that the League has ever considered;" but "time and again it has voted against any extension of federal regulation of the rates and services of water carriers." The witness went on to suggest that if time permits the League "can later present expert witnesses on this complicated and highly controversial subject." Asked by Senator Reed if he personally opposed "reasonably comparable" regulation for all transport agencies, Mr. Day replied that he didn't think many people "could throw stones" at a proposition like that. He contended, however, that S. 2009 would make the regulatory law "restrictive in degree" as between the different forms of transportation. In this connection the witness went on to explain that the water and rail carriers could be required to publish joint rates, but that joint rail-motor rates would only come when the two agencies agreed upon them.

Mr. Day called the Wheeler-Truman bill's commodities clause "substantially more drastic" than the present one; and the League is opposed to this change which "obviously goes far beyond any mere recodification or restatement." The witness went on to say that "There are many circumstances and places where the only transportation service available is furnished by a carrier having some relationship to the manufacturing, mining or producing company and we do not know of any demand for legislation making such transportation unlawful." Chairman Wheeler here broke in to say that he is inclined to think that S. 2009's commodities clause may be too drastic, and that perhaps it should be modified.

Other N. I. T. League objections voiced by Mr. Day ran to the proposed changes in limitation periods during which claims for loss and damage and reparations could be brought and to the definitions of transportation subject to the act. In the latter connection the witness asserted that "quite evidently the scope of the act is broadened both as to water transportation and as to motor transportation to cover many services in interstate commerce which have not been included under the terms of interstate transportation in the Act as it now stands." The League also suggested that an "affirmative amendment is necessary and desirable" to clarify questions with respect to car spotting at private industry tracks which were left by the commission's decision in the terminal services phase of the Ex Parte 104 investigation of practices affecting operating revenues and expenses.

In conclusion Mr. Day requested—if the committee "believes that the Interstate Commerce Act should be rewritten at this time"—that the hearings be extended for two weeks while the League prepares a more detailed analysis which it should be given "at least a day" to present to the committee. That idea didn't seem to appeal to Chairman Wheeler who said that if the hearings were put off two weeks for the N. I. T. League, they would have to be similarly delayed for others with the result that there would be no legislation "for five years." The chairman went on to tell the witness that "you fellows" seldom come before the committee with a "constructive idea," adding that presentations from "all types of organizations" are usually based on objections only.

Reed Favors Eliminating Air Transport Provisions

Mr. Day was followed by Herman A. Bayless, counsel for the Mississippi River System Carriers' Association, which was also heard from in a later presentation by its president—O. S. Barrett of Cincinnati, Ohio. Between these two came the testimony of Edgar S. Gorrell, president of the Air Transport Association of America who said that the "scheduled air carriers" are "vigorously opposed" to those provisions of S. 2009 and of S. 1660 (Senator Reed's bill) which apply to transportation by air. Senator Reed assured the witness that he was going to make a motion in committee to strike from S. 2009 all reference to air transportation; also, he will amend his own bill in similar fashion if the measure receives consideration.

In the course of his presentation Mr. Gorrell took occasion to correct an impression which he said has been abroad that the rates of air carriers are not subject to regulation. This impression, he went on, "was given currency" by the committee-of-six report's statement to the effect that the Civil Aeronautics Authority "is given no power to prescribe either maximum or minimum rates, except for the handling of mail." This "inaccurate and misleading statement," the witness added, "is so bald that it can be excused only upon the assumption that those who prepared it failed to study the Civil Aeronautics Act." He cited the provisions of that Act's section 1002 (d) to refute the charge.

President Barrett of the Mississippi River System Carriers' Association asserted at the outset that the S. 2009's plan of weaving the provisions of the former Wheeler-Ramspeck water carrier regulatory bill into the Interstate Commerce Act would bring forth a piece of legislation that "no one knows the implications of." So far as Chairman Wheeler was concerned such language as "we don't know what's in it—it shouldn't be enacted hastily" has been "worn out" at hearings before the committee. Further discussion brought up the subsidy question whereupon Mr. Barrett denied that the water carriers were thus aided. But whenever Senator Wheeler finds the government keeping up channels for such carriers he says "it's a subsidy." Mr. Barrett thought their differences ran to the "definition of terms;" but the chairman went on to outline a proposition which he has heard "in all seriousness" that the government, which is aiding water transport, should donate to railroads a portion of the cost of maintaining their rights of way. The Montanan said he had told the proponents of such

a plan that "it's a subsidy" and he's not in favor of subsidies, which, he added, is what government expenditures on waterways are.

Senator Reed asked why water carriers shouldn't be made to comply with the same regulatory laws as other carriers which provide their own rights of way, "in whole" as do the railroads, or "in part" as do the motor carriers. Mr. Barrett replied that there has been "so much" to look over in S. 2009 that he hasn't had time "to contemplate the general subject." Senator Wheeler reminded him that the proposition to regulate water carriers "isn't anything new;" and the witness objected "to this bill." "And," said the chairman, "to any other bill that attempts to regulate you." The witness hadn't seen a bill yet "that wouldn't destroy us." Whereupon the chairman called for specific suggestions for changes in the bill; it doesn't "carry much weight" with him when the witness says he doesn't want to be regulated at all because it might cost him some money. Mr. Barrett doubted if it would be possible "to reconstruct this thing;" and the chairman said "you don't want to reconstruct it."

Water Transport Just an Infant Industry

When the witness next spoke of water transportation as "just beginning" on the inland waterways, Senator Wheeler asked him how long his family had been on the river. Mr. Barrett was the "fourth generation," but he insisted that in pre-nine-ft.-channel days there was no such thing as a "dependable artery of transportation for continuous navigation"—the ton-mile traffic in recent years has been above "anything contemplated in the so-called golden days." Next he referred, as had a previous witness, to American steel's capturing of the Southern markets after the opening of the improved Ohio. Senator Wheeler asked if that was the result of the waterways or the tariff. The witness didn't know, but Majority Leader Barkley, who is a member of the committee, suggested that the tariff "should have done it—it was put high enough."

After a bit of jockeying about whether the witness accepted or rejected the "principle" of regulation, Senator White drew from Mr. Barrett the cautious statement that he, personally, was not "fundamentally an opponent in theory" of the regulation of the water lines. "Not in theory, but in practice you are," said Chairman Wheeler. Mr. Barrett's thought was that there must be "some reason" behind any specific proposal with the burden of proof on the proponents. Chairman Wheeler identified himself as one of the proponents, and went on to say that during his 16 years of service on the committee he has never seen a regulatory bill come up but what the industry to be regulated claimed there was "no demand" for the measure. They "all favor the theory of regulation, but object to every bill;" and "if you ask them to write a bill they bring in one with none of the principles of regulation." After all, the chairman added, the country, whether rightly or wrongly, is "committed" to the policy of transport regulation; and he has heard complaints from all over about expenditures on waterways.

When Mr. Barrett expressed fears that water rates would be related to rail rates, Senator Wheeler told him he was "too fearful." The chairman, who later told the witness that he had a "crucifixion complex," said that none of the things feared were going to happen; and if they did the senator would be the first to prevent it if he still had anything to do with the matter. At another point the chairman said to Mr. Barrett: "You don't even want to be regulated—yet we're taxing railroads to help build waterways." And Senator Reed came up with: "State why you should be exempt when the only reason for this 'cheap' transportation is the expenditures by the government." The witness protested that the committee members were trying to put the burden of proof on him; and he added that "if this bill is enacted our equipment is for sale the next day." "Oh! you'll change your mind about that," said the chairman; and the witness went on to conclude his statement with its references to railroad financial structures similar to such comment made by him before the House committee. He concluded with an expression of hope that the committee would not advance the bill in its present form—a hope which Chairman Wheeler said was like the one he had expressed earlier in the week with reference to closing the hearing on S. 2009 by April 7.

No Compulsory Pooling at This Session

J. V. Norman, counsel for the Property Owners' Committee, comprised of coal producers in the West Virginia region, appeared to oppose the elimination from the rate-making rule of that phrase about the effect of the rates on the movement of traffic which the railroads want to get rid of. Mr. Norman also objected to S. 2009's commodities clause and to any proposal which might change the bill's pooling provisions so as to give the I. C. C. power to require pooling. With respect to the latter, which is also opposed by the committee-of-six and the railroads, Chairman Wheeler said "it isn't going to be done—at this session anyway." With respect to the commodities clause, the chairman said again that he thought it would have to be modified. He added "to be frank" that, as was suggested in last week's issue, the drafters of the clause tried to have it meet the decision of the Supreme Court in the Elgin, Joliet & Eastern case. With reference to pipe lines Senator Wheeler is "not sure" what the commodities-clause policy should be; but he does think the matter ought to have separate consideration. As "a guess" Mr. Norman told Senator Reed that he thought the Supreme Court as now constituted might reach a different decision in the E. J. & E. case; and Chairman Wheeler added that one difficulty about reenacting the present clause was the possibility that courts would regard such action as having been taken with knowledge of the previous E. J. & E. decision.

Tom J. McGrath, counsel for the Brotherhood of Railroad Trainmen, objected to changing the law's present consolidation provisions, evidently on the theory that there will be no mergers of consequence while adherence to the commission's plan is required. Committee members endeavored to point out that the consolidation provisions of S. 2009 were not at issue since everyone approved of repealing the plan. Nevertheless Mr. McGrath said the B. of R. T. "very seriously" asserts that nothing should be done pending the proposed investigations of the relative economy of the various types of carriers and government aids to transport.

Furthermore, Mr. McGrath went on, S. 2009's provisions for the protection of labor in consolidations are not satisfactory to the B. of R. T. which prefers some such provision as that in the Emergency Transportation Act of 1933, which stymied former Co-ordinator Eastman. B. M. Jewell, president of the Railway Employees Department, American Federation of Labor and one of the three labor members of the committee-of-six, reminded the witness that the B. of R. T. was a party to the so-called Washington Agreement, which the Rail-

way Labor Executives' Association anticipates will guide the I. C. C. in the enforcement of the labor-protection provisions.

Mr. McGrath replied that although the B. of R. T. was a member of R. L. E. A. when the Washington Agreement was signed, the Trainmen were never "entirely satisfied" with the pact. Chairman Wheeler suggested that as "a practical legislative matter" Mr. McGrath could not expect to get Congress to write into the law something different than his client had agreed upon with railroad management. The witness didn't know about that, as he went on to urge the 1933 act's provisions as "better—surer;" also, he suggested that labor-protection provisions might be extended to cover pooling and abandonment projects as well as consolidations.

"Impossible Burdens" on Railroads Hurt Labor

The latter suggestion brought from Chairman Wheeler the query as to what is going to happen to railroad labor in the long run if the railroads are required to keep men on where there is no traffic. The chairman followed through to warn the witness that "you can't put impossible burdens on the railroads and expect them to continue to employ men—you can't ask the railroads to make positions when there isn't any business." The committee, the chairman went on, "has always gone just as far, and farther than a great many people think it should" on such matters, adding that it could not, if it considered the long-run interest of labor itself, tell the I. C. C. that it must require men to be retained after abandonments.

Mr. McGrath went on to state the B. of R. T. position in favor of eliminating the long-and-short-haul clause, but his talk about those provisions of S. 2009 which embody the so-called Signal Inspection Law was cut short by Mr. Jewell who suggested that the witness was attending to the signalmen's business. Mr. McGrath thought he had found a couple of things which should be changed, but said the B. of R. T. wants what the signalmen want in that connection.

C. E. Todd, Jr., executive secretary of the Contract Carriers Division of American Trucking Associations, Inc., was the final witness at last week's sessions. He addressed himself to various specific provisions of S. 2009 which the contract truckers desire to have altered or clarified.

John J. Seid of the Crown-Zellerbach Corporation, which has an affiliated common-carrier water line—the Western Transportation Company—objected to the inclusion of water carriers within the bill's regulatory provisions. If there is to be a change in that connection he prefers to have water rates which are competitive with rail or motor rates regulated by a joint board of the I. C. C. and Maritime Commission with a neutral chairman. Also, Mr. Seid objected to S. 2009's commodities clause; and Chairman Wheeler reassured him on that matter as he had other witnesses.

A Boost for the Express Agency

J. R. Van Arnum, representing the National League of Fresh Fruit & Vegetable Distributors and the United Fresh Fruit & Vegetable Association, made a hit with Chairman Wheeler who found it "refreshing" to have someone come forward and say they are talking about their "own selfish interests." Mr. Van Arnum suggested that refrigerator car lines owned by railroads and railroad affiliates should be brought within the scope of the act; and Senators Wheeler, Truman and Reed said they saw no reason why such car lines should not be covered. After the witness had made some suggestions on time limits in connection with reparations, the chairman led him into a discussion of the Railway Express Agency, asking whether or not there should be competition in the field wherein R. E. A. operates. The witness did not think so, and went on to explain that there could be no competition as to rates; while he doesn't see "how you could get much better service than the Express Agency gives now."

Getting over to the "public interest," as he put it, Mr. Van Arnum thought that the bill's provisions with respect to minimum and maximum rates should perhaps be amended to prohibit the I. C. C. from fixing the minimum rates for any type of carrier on the basis of a minimum which was necessary to sustain another agency. Chairman Wheeler thought there was "much" in that suggestion, although he pointed out that the declaration of policy attempts to take care of the matter. However, he went on, the declaration of policy is "largely window dressing;" and while it is "inconceivable" to him that the I. C. C. would fix the minimum rates of water lines to meet the minimum rates of the railroads, he thought that some of the "fears" might be allayed if a specific prohibitory provision were written in.

Ivan Bowen, counsel for the National Association of Motor Bus Operators, fitted the presentation he made before the House committee, as reported in the *Railway Age* of April 1, to S. 2009, which he said is similar to H. R. 4862, the committee-of-six bill, in the "essentials" which interest the bus industry. Mr. Bowen could see no reason for the railroads proposing a co-ordination of regulation under one act and a change in the I. C. C. administrative set-up as would result from the provision requiring any I. C. C. divisions to be along "functional" lines. N. A. M. B. O. wants the I. C. C. "left free as they are now" to administer the law.

As was the case with previous witnesses coming forward with general objections, Chairman Wheeler called upon Mr. Bowen to suggest specific changes which the bus industry wants—general talk about "suspicions" didn't "set very well" with the chairman. At another point he told the witness that the latter's clients would get "much better consideration" if something specific were before the committee, which isn't going to be helped in executive sessions by a lot of general denunciations. The latter, Chairman Wheeler went on, may be good stuff for "home consumption" just as some speeches of congressmen and senators are made for that purpose. Mr. Bowen denied that he was talking for the folks back home as he went on to challenge "any man" to say just where the transport industry is going to land under the codified act.

Can't Legislate on Basis of "Unfounded Fears"

The chairman replied that the act had been checked by the I. C. C. legal staff, adding that Congress "can't legislate upon the unfounded fears of any industry in the country." As to the provision requiring I. C. C. "functionalizing" Senator Wheeler told Mr. Bowen that the mere presence of that provision in the bill doesn't mean that the committee is going to be guided by it. At another point the chairman told the witness that the bus industry was among those who get "hysterical" with a fear that someone is trying to "slip something over." He went on to say that perhaps the railroads and the railroad brotherhoods can slip something over on the I. C. C. "experts," the committee and Congress, adding that if they can "they're pretty smart." Mr. Bowen replied that he thinks they are pretty smart, but Senator Wheeler

suggested that if they were as smart as that the railroads wouldn't be in their present state. Along the same lines the chairman also told the witness that the latter was assuming that the Interstate Commerce Commission would not "use ordinary intelligence or be reasonably honest," things which Congress must assume in passing regulatory laws.

Mr. Bowen had made a claim that bus lines affiliated with the railroads do not make money; and Senator Reed wanted to know why. The witness gave it as his own opinion that it takes a "bus man" to operate a successful bus line. He found an exception to his general statement in the Interstate Transit Lines, affiliate of the Union Pacific, which he said is successful because it continues to be operated by the "bus man" who built it up. Also, in this connection Mr. Bowen claimed that railroads are promoting state laws to restrict highway transportation; and thus he wonders if they want to make a success of their own motor operations, despite their investment of some $43,000,000 therein.

Opposes Studies

In concluding Mr. Bowen objected to the investigation of the relative economy and fitness of the various modes of transportation, which S. 2009's section 52 directs the I. C. C. to proceed with. The witness explained that he did not think any public body should have the power to say what agency was best fitted to do a particular transport job. Neither did Mr. Bowen favor the other proposed I. C. C. investigation of subsidies, at least until it is shown that the long-awaited Eastman report does not adequately cover the subject. In his testimony before the House committee Commissioner Eastman predicted that the report he is planning to issue would not settle the question.

Mr. Bowen was followed by Gilbert R. Johnson, counsel for the Lake Carriers' Association, who wanted specific exemption from regulation for the Great Lakes bulk carriers of iron ore, coal, grain and limestone. His contention was that these carriers did not compete with the railroads, and Chairman Wheeler told him that if that were the fact he had nothing to worry about under the provision of S. 2009 which would permit the I. C. C. to exempt any contract carrier by water which the regulatory body found to be non-competitive with another transport agency. This provision, the chairman added, went "farther than some people thought we ought to go."

Paul Scharrenberg, national legislative representative of the American Federation of Labor, appeared briefly to register the International Longshoremen's Association's opposition to placing the regulation of water carriers under the Interstate Commerce Commission. He spoke of various federal agencies which now regulate the merchant marine in one way or another, listing first the Maritime Commission. Chairman Wheeler suggested that "the principal thing they're doing is pouring out government money" to the ship lines. Mr. Scharrenberg thought the Maritime Commission does "more than that," as he went on to list other regulators of the merchant marine and labor matters in connection therewith. Chairman Wheeler reminded him that organized labor had promoted many of these regulations, and wondered if the witness now wanted some of them repealed. Mr. Scharrenberg did not, but he didn't want another agency added to the merchant marine's present group of "at least nine" regulators.

C. E. Childe, chairman of the Mississippi Valley Association's traffic committee, appeared to oppose the bill's provisions for the regulation of water carriers. He fears that water rates would be related to rail rates, despite his appreciation of the fact that Chairman Wheeler, in the drafting of S. 2009, "tried to protect the public interest." Meanwhile Mr. Childe endorsed some provisions of the bill, such as those retaining the long-and-short-haul clause and the existing ratemaking rule; also he was gratified to find no provisions for tolls on the inland waterways or for the discontinuance of the government-owned Inland Waterways Corporation. Chairman Wheeler reminded the witness that they both oppose repeal of the long-and-short-haul clause, adding that their disagreement arises from the chairman's inability to see how one can consistently oppose permitting the railroads to cut their prices to meet water competition while at the same time objecting to the regulation of water rates. Mr. Childe thought he could justify the M. V. A.'s position, and he went on to talk about the interior country's "desperate" need for "cheap" transportation.

Short Line Association

J. M. Hood, president of the American Short Line Railroad Association, placed before the committee that organization's legislative program, which was summarized in the *Railway Age* of March 25, page 525, in connection with the report of Mr. Hood's presentation before the House committee. The witness agreed with Senator Reed's suggestion that the short lines are "pretty much" in favor of the committee-of-six program, but they want amendments to the Railway Labor Act as well. Generally Mr. Hood favored S. 2009 as a measure which would do much to bring about equality of opportunity in the transport field. He did, however, argue at some length for the incorporation in the bill of the provisions of the so-called through-routes bill (S. 1085) which would give the I. C. C. power to establish through routes and joint rates without reference to the short-hauling of any carrier. Also, if there is to be any change in the commodities clause with respect to railroads, Mr. Hood wants to be heard on the matter.

John H. Ross, president of the Inland Water Petroleum Carriers Association, asked that the bill be amended to provide for specific exemption of private and contract carriers of petroleum products in tank vessels. Senator Reed cited for the witness the provision (cited previously by Chairman Wheeler for the Lake Carriers' Association counsel) which would permit the I. C. C. to exempt contract water carriers found to be non-competitive with other transport agencies. Mr. Ross' remedy, the Kansan suggested, would be a "proper showing" before the I. C. C.

Would Put Private Car Lines Under I. C. C.

Appearing in his own behalf, Luther M. Walter, co-trustee of the Chicago Great Western, first asked that the bill be amended to bring all private car lines within its scope. He noted in this connection that he would go farther than Witness Van Arnum, whose above-mentioned suggestion was for the inclusion of only refrigerator car lines owned by railroads and railroad affiliates. Mr. Walter asserted that the I. C. C. has had difficulty in getting information about these private car lines; while the C. G. W. trustees had trouble getting the "facts" to support their pending complaint against the two-cents-per-mile rental charged for refrigerator cars owned by railroads and railroad affiliates. He would thus bring under the act "all cars used, regardless of who owns them." Senators Wheeler and Truman expressed agreement with the witness on the point.

Continuing Mr. Walter, as he had before the House committee, advocated giving the I. C. C. power to require pooling of revenues and the establishment of joint rail-motor rates. With respect to the latter he again complained about the A. A. R. attitude, although he later said in another connection that he didn't want to be "unduly critical" of the Association of American Railroads. Whereupon Senator Reed said he was "pretty critical" of it himself.

After giving way to Major General T. Q. Ashburn, chairman of the Inland Waterways Corporation, Mr. Walter returned to suggest specific amendments which would carry out his ideas. Here he made it plain that the power he would give the I. C. C. over joint rates and through routes would be broad enough to embrace what the above-mentioned through routes bill seeks to do in that connection. In closing the C. G. W. co-trustee offered an amendment to the Railway Labor Act which would give the carriers the right to appeal from Adjustment-Board decisions. Mr. Walter knows of no other U. S. law "which takes the money of one man and gives it to another" without giving the former the right of a judicial review. He hoped someone would introduce his proposed amendment in Congress.

Ashburn Endorses Water-Carrier Provisions

Meanwhile General Ashburn had told Chairman Wheeler that he favored the bill's provisions to place water-carrier regulation under the I. C. C.; also, he thinks that S. 2009's rate-making rule is "a good one." During the course of his presentation the general got into a couple of arguments with committee members—the first when he contended that the farmer gets the benefit of "cheap" water transportation. Senators Wheeler and Reed, who did most of the talking on the matter, seemed to remain unconvinced at the close of the discussion. Senator Reed also talked about the policy of maintaining the inland waterways, particularly what he regarded as the uneconomic expenditures to keep the Missouri open for navigation.

General Ashburn maintained that, with the expenditures on waterways already made, the only way to get the benefit was to use them; and I. W. C. was enabling the people to do that. Whereupon Senator Reed said that nothing he had ever done in public life met with more general approval in Kansas than his introduction of Senate Joint Resolution 81, calling for liquidation of I. W. C. He went on to assert that there is no more reason for the federal government to operate a fleet of boats than there is for it to operate a fleet of motor trucks.

Here came the above-mentioned concluding testimony of Co-trustee Walter of the C. G. W., and he was followed in turn by three opponents of I. C. C. regulation of water carriers—W. C. McClure, secretary of the Camden (Ark.) Chamber of Commerce; John J. Burns, counsel for the American Merchant Marine Institute; and Theodore Brent of the Coast Transportation Company, New Orleans, La. During the course of Mr. Burns' presentation Chairman Wheeler brought out the fact that some of the coastal and inter-coastal water lines are in favor of S. 2009's water-carrier provisions. The chairman went on to say that some shipping people have discussed with him matters which they wouldn't "dare" to discuss publicly, because of a fear of getting in wrong with the Maritime Commission. He wonders how anyone can justify turning regulation of water carriers over to an agency which is itself engaged in steamship operations, promotional activities and the doling out of subsidies; and he thinks that "sooner or later" the shipping business would be better off with regulation by a separate agency—because under the present set-up "you'll get a scandal before you get through."

Wants "Added-Cost" Rates Prohibited

The first witness at the April 12 session was Herman Mueller, secretary and general manager of the Port Authority of St. Paul, Minn., who turned out to be another opponent of water carrier regulation. He was followed by Harry C. Ames, counsel for the Mississippi Valley Barge Line Company, a common-carrier, which favors regulation. Lack of regulation, Mr. Ames said, is "a distinct disadvantage rather than a benefit in the competitive struggle with railroads." In his opinion S.2009 is an "admirable document"—a "magnificent example of codification and restatement of existing law." Mr. Ames did, however, want to have a few matters clarified. First he asked for a specific prohibition against the making of rates on the so-called "added-cost" basis. He thinks this should be done so long as Congress is passing legislation to deal with destructive competition in the transport field; because an "added-traffic" rate is a "destructive rate," and "if carried to extremes it would ruin all transport agencies."

Mr. Ames next pointed out that S.2009 would "virtually" repeal the Denison Act which was passed to force railroads to join with water carriers in joint rates. He conceded that the Wheeler-Truman bill would leave the I. C. C. with its power to require such joint arrangements, but he wants to insert also the Denison-Act's provision giving the I. C. C. specific power to fix the differentials as between all-rail and rail-water rates. Also, Mr. Ames wants the initial tariffs of water carriers exempted from suspension, as was done in the case of initial motor carrier tariffs when the Motor Carrier Act was passed.

R. G. Marelle, president of the New York Marine Company, was also in favor of further regulation of water carriers; and while he preferred to have it placed under the Maritime Commission, he said he would not object to S.2009 with clarifications along the lines suggested by Mr. Ames. Responding, so he said, to Senator Reed's request for specific constructive suggestions, Benjamin C. Marsh, executive secretary of the Peoples Lobby, Inc., would strike out all of S.2009 but its enacting clause, and substitute a bill providing for government ownership of railroad.

Interstate Commerce Commissioner Joseph B. Eastman, chairman of the commission's legislative committee, and Harry A. Wheeler, president of the Railway Business Association, were scheduled to appear at the April 13 sessions.

How Car Conditions Affect Safety

(*Continued from page 662*)

gears and center-sill construction on cars in interchange service. Such standards are adopted only after exhaustive tests and proofs as to their utility, durability and safety, and then only after a vote of the member carriers. It appears that carriers can ill afford not to avail themselves of the benefits of standardized improvements, to the end that facilities for transportation by rail will be maintained in condition to provide the maximum amount of efficiency as well as the greatest safety to employees and travelers.

Bus Traffic Statistics

IN the last five months of 1938, Class I bus operators in the United States handled 60,718,094 passengers, as compared with 57,751,629 in the same period for 1937, with total revenues in 1938 of $50,206,032, as compared with $46,605,454 in 1937, for the comparative five months. These figures are now available for the first time in reports issued by the Interstate Commerce Commission, which classifies Class I bus operators as those with annual revenues of more than $100,000, and whose average revenue per passenger carried is more than 20 cents; those with average passenger revenue of under 20 cents being classified as local or suburban carriers.

The break-down of the passenger and revenue statistics into districts shows the following:

District	Total Revenue 1938	Total Revenue 1937	Total Passengers 1938	Total Passengers 1937
Eastern	$18,420,543	$16,582,248	27,832,300	26,045,204
Southern	11,849,809	10,060,192	13,514,324	12,519,613
Western	19,935,680	19,963,014	19,371,470	19,186,812

Selected statistics for wholly-owned railway bus subsidiaries, or companies in which the railways have large interests, show the following results for the last five months of 1938 as compared with the same period in 1937:

	Total Revenue 1938	Total Revenue 1937	Total Passengers 1938	Total Passengers 1937
Boston & Maine Transportation Company	$347,355	$316,485	1,176,848	956,871
New England Transportation Company	580,590	641,279	1,356,953	1,519,831
Central Greyhound	2,990,247	2,592,052	1,775,486	1,656,248
Jersey Central Transportation Company	30,161	27,305	61,446	60,794
Pennsylvania Greyhound	4,070,222	3,277,014	2,229,770	1,903,658
Reading Transportation Company	100,009	94,607	372,506	384,143
Santa Fe Trails of Illinois	476,809	453,622	326,766	310,921
Norfolk Southern Bus Company	119,490	119,732	309,141	314,904
Richmond Greyhound	372,758	284,752	246,635	201,779
Burlington Transportation Company	566,416	607,776	349,310	358,219
Denver-Colorado Springs Pueblo Motorway	80,465	84,517	59,892	60,682
Interstate Transit Lines	1,729,678	1,624,626	1,026,705	1,056,845
Missouri Pacific Transportation Company	629,021	643,879	951,286	947,982
Motor Transit Company	292,440	285,992	1,540,222	1,586,385
Northern Pacific Transportation Company	17,519	22,570	25,225	26,566
Northland Greyhound	2,033,715	1,921,490	1,622,263	1,605,121
Pacific Greyhound	3,916,556	4,044,054	3,886,011	3,497,821
Rio Grande Trailways	124,918	113,279	70,367	80,518
Santa Fe Trailways	1,188,719	1,178,464	814,888	846,638
Southern Kansas Greyhound	95,089	95,199	67,714	76,850
Southwestern Greyhound	2,471,826	2,269,164	1,410,167	1,276,178
Union Pacific Stages	595,868	625,367	381,114	416,206
West Virginia Transportation Company	95,945	116,091	315,620	387,428

SUBSTITUTE (ERSATZ) MATERIALS are being used wherever possible by the German State Railways in an effort to save essential raw materials and reduce necessary imports, which is vigorously pushed in the state's four-year plan of material economy. Standard cylinder-oil for locomotives has been replaced by an emulsion and lime water. Red lead is being mixed with barium sulphate and ferric oxide and white lead with zinc oxide. The thickness of the lead coverings of cables has been reduced and tin content of bronzes has been diminished from 10 to 5 per cent. The bearing cases of locomotives have been reduced in thickness. Soldering metals now contain 33 per cent of tin, in place of the former 80 per cent. The number of coats of paint containing oil have been lowered from three to two. Electricity or propane gas are now being used exclusively for signal lamps. Motor rail-cars are being fired with synthetic benzine or oils made of lignite. On all equipment except locomotives tin bearings have been replaced by bearings of artificial resin. Steel boiler pipes are being installed in locomotives instead of those of copper and 350 locomotives have been equipped with steel fire boxes.

New Books...

Car Department Officers Proceeding. Published by the Association; bound in cloth and comprising 162 pages, 5 in. by 8½ in. Secretary-Treasurer F. L. Kartheiser, chief clerk-mech., Chicago, Burlington & Quincy, 547 W. Jackson boulevard, Chicago. Price $2 (including annual membership dues).

Containing the official proceedings of the second annual meeting of the Car Department Officers' Association at Chicago on September 27 and 28, this well arranged and carefully edited book presents a large amount of information of value to railway car foremen and supervisors of all ranks. The discussion of various important details of car construction is particularly pertinent. Other reports cover such subjects as: shop operations, facilities and tools; passenger train car terminal handling; lubricants and lubrication; freight-car inspection and preparation for commodity loading; interchange; loading rules; and billing for car repairs.

Patent Tactics and Law, by Roger Sherman Hoar, M.A., LL.B. 315 pages. 8½ in. by 6 in. Bound in cloth. Published by the Ronald Press Company, New York. Price $4.50.

Written by the commercial attorney of the Bucyrus-Erie Company, in which the American Brake Shoe & Foundry Co., holds a large interest, this book is intended chiefly to acquaint industrial executives and engineers with the "tactics" of patent cases together with translation into plain English of as much of the patent law as will enable them "to understand the company's attorney when dealing with the patent problem and to co-operate fully with him." The author believes that ultimate protection and satisfaction in dealing with patents is possible only when industrial officers directly concerned know at least the "drift" of patent principles.

Therefore, in easy, readable style, making use of such devices as the hypothetical conversations and scores of anecdotes, the book goes into such fundamental questions as duplication, infringement, relations with patent attorneys, evaluation of patent rights, etc. A chapter at the end is titled "Misconceptions Summarized;" another discusses informally the choice of an attorney, touching, among other things, upon fees, undesirable lawyers, "local vs. Washington" firms and the "inside lawyer." A complete table of cases and extensive index are carried at the rear of the book.

The Romance of American Transportation, by Franklin M. Reck. 253 pages. 9 in. by 6¾ in. Published by the Thomas Y. Crowell Company, New York. Price, $2.50.

Here is a popular book on the history and present status of transportation in this country written largely for the elder-young by a man who has spent the last 12 years as an editor of "The American Boy". As is true of an earlier work by the same author, "Automobiles from Start to Finish", the style is clipped and matter-of-fact, the information highly concentrated in easy, though quite valid, generalizations.

As the source material of the book is almost entirely secondary —that of the chapters of railroading at least—, Mr. Reck has been able to devote his efforts to making readable and connected vast aggregates of facts painfully gathered by forerunners. And since, in his historical sections, his material is limited to time-tried examples that are almost legendary in their general acceptance, no hint of controversy, qualification or limitation interrupts the smooth-running commentary. The illustrations and maps are well-chosen, and comprise, for the most part, old favorites of writers on American transportation history.

The author is indulgent with all forms and phases of transportation and tends to appreciate them, as all laymen do, in direct proportion to the hub-bub of promotion and the fever of public expenditure lavished on each. It is perhaps too much to hope for basic economics and a scholarly approach to fundamental costs in a popular work on transportation, but it would seem that the future taxpayers and transportation buyers ought to get the truth on such matters in the same palatable form as Mr. Reck has given them history and romance.

NEWS

"Agreed" Rates Mount in Britain

850 shippers now have contracts, an increase of 63 per cent during year

$20,000,000, or almost 5 per cent of the gross freight revenues of the British railways in 1938, were collected under their "agreed" charges. At the end of 1938 "agreements," or contracts superceding regular rates, were in effect between the railways and 850 shippers. This was an increase of 63 per cent over the 522 shippers using these rates at the beginning of the year.

These facts are brought out in a recent editorial survey in the "Railway Gazette" (London), which states that the "agreed" charges have been of considerable assistance to the railways in retaining or regaining traffic which otherwise would have moved by highway. The availability of such rates on the railways has, in particular, forestalled the enlargement of many private truck fleets. Secondly, the agreements have enabled the railways to retain a large volume of l.c.l. shipments to scattered destinations for which it would be awkward or undesirable to quote commodity rates.

All charges are on a unit basis,—per ton, per package or per animal—with the exception of an unusual agreement with F. W. Woolworth & Co., Ltd., which is based on an agreed 3.95 per cent of Woolworth's annual turnover. That is to say, the British railways do all the hauling for this concern, without regard to tonnage or distance or classification of freight and are paid on a basis of the company's turnover. The agreements apply for a pre-determined period, usually 12 months, and the contract rates are generally arrived at by averaging the rates paid by the shipper for each unit of his traffic during a representative period preceding the agreement. To test the soundness of this average during the life of the agreement, the railroads make checks from time to time to determine whether a change has occurred in the shipper's traffic characteristics sufficient to warrant a modification of the contract rates when the time comes to renew it.

While some agreements have been effected at the request of shippers who seek simplification in accounting, the majority are the result of active solicitation of shippers by the carriers. Generally speaking, shippers accept the average rate for each unit of traffic determined by the railroads by calculation from a previous period. This rate, when agreed to, must be submitted for approval to the Railway Rates Tribunal which is obligated by law to determine that the agreed rates could not otherwise be obtained by the application of commodity rates and that they will not affect railway revenues adversely.

At present, it is stated, the agreed charges arrangement is confined almost entirely to commodities in the higher-classed merchandise groups and no attempt has as yet been made to apply it to low-rated classes. Sufficient experience has been gained, however, to show that the principle is likely to become a permanent and steadily expanding feature of railway practice. In particular, it is expected that these contract rates may expand if the railways secure the legislation they are seeking, which would make it unnecessary to secure the approval of the Railway Rates Tribunal for such contracts.

Roosevelt to Withdraw Amlie's Name

The White House has announced that President Roosevelt will shortly send to the Senate a notice asking that the name of Thomas M. Amlie be withdrawn as a nominee for a position on the Interstate Commerce Commission. Mr. Amlie has written a letter to the President asking that his name be withdrawn, and the President will, it is understood, shortly answer him. Presumably, Mr. Amlie decided to yield to pressure and has decided to ask that his name be withdrawn in view of the fact that his nomination caused such widespread opposition in the Senate. Mr. Amlie's nomination has remained in a Senate interstate commerce subcommittee for several weeks with no action on it having been taken despite the fact that hearings were held.

Two Roads Get Income Tax Refunds

The Bureau of Internal Revenue has announced that the Norfolk & Western was overassessed the following amounts for the payment of income taxes and interest: 1929, $25,610; 1930, $80,129; 1931, $120,228; and 1932, $265,330.

The Bureau also said that the Georgia, Florida & Alabama had been overassessed $10,880 in 1933 and $11,034 in 1934.

I. C. C. to Probe Automobile Rates

Hearings on investigation into methods of transporting new autos June 13

The Interstate Commerce Commission has assigned for hearing at the Hotel Sherman, Chicago, on June 13 its recently-instituted investigation into the lawfulness of rates, charges, rules, regulations and practices surrounding the transportation of new automobiles in interstate commerce by railroad, common and contract motor vehicles, including the so-called "haul-away," "drive-away" and "tow-away" methods, or by any of those methods in conjunction with water carriers. An April 12 notice in connection with the case (Docket No. 28190) reveals that the hearings will be conducted by Examiners Disque and Lawton, while Arthur F. White, assistant director of the Bureau of Statistics and its head cost analyst, will be associated with them. The notice goes on to say that the Maritime Commission has instituted a similar proceeding embracing movements on the Great Lakes and by coastwise and intercoastal water carriers under its jurisdiction, which proceeding is to be heard with the I. C. C.s.

"The two Commissions," the I. C. C. notice continues, "have caused to be prepared and sent to the respondent carriers certain questionnaires from which it is expected that a fairly complete picture of the traffic may be had, showing the principal points of origin and destination, the routes used, revenue derived and incidents of the service performed. The data thus obtained are to be consolidated by this Commission's Bureau of Statistics and offered in evidence through its witness at the opening of the hearing. The principal automobile manufacturers have been contacted and have expressed their intention to cooperate with this Commission by furnishing information as to the distribution of their shipments among the various agencies of transportation and as to the relative value to them of the services of these agencies."

After the introduction of the commission's evidence it is expected that the carriers will offer their evidence, including such proposals as they may have. "Parties," the notice says in closing, "may present any question within the province of the Commission and within the scope of the order instituting the proceeding, but so far as now appears the principal issues

will probably respect maximum and minimum rates and the relation, if any, to be prescribed between the rates of the several agencies of transportation to avoid alleged destructive competition. For instance, it may be contended by some that the rates by truck should be the same as the rates by rail and by others that they should be certain amounts higher or lower."

House Sub-Committee Will Work on Transport Legislation

Seven members of the House committee on interstate and foreign commerce, including Chairman Lea, will comprise the sub-committee to deal with general transportation legislation on which 10 weeks of public hearings before the full committee were completed on March 30.

The other six members of the sub-committee are: Representatives Crosser of Ohio, Bulwinkle of North Carolina, Cole of Maryland (Democrats), Wolverton of New Jersey, Holmes of Massachusetts, and Halleck of Indiana (Republicans).

Would Authorize R. I. Motor Carrier Purchase

The Rock Island Motor Transit Company, a wholly-owned subsidiary of the Chicago, Rock Island & Pacific, would be permitted to purchase the operating rights of George H. Swaim, doing business as the Inter-State Express Company, if the Interstate Commerce Commission adopts a recommended report and order of John S. Higgins, an Examiner in the Section of Finance of the Bureau of Motor Carriers. The routes involved in the transaction are between Kansas City, Mo., and Atchison, Kans., and between Kansas City, Mo., and Topeka, Kans.

P. W. A. Aids Transport Industry

Extensive aid to the industries manufacturing light and heavy transportation equipment was brought about by the Public Works Administration during the last five and a half years, according to an announcement made by the Bureau of Labor Statistics in a report submitted to P. W. A. Administrator Harold L. Ickes.

Total purchases of transportation equipment financed by the P. W. A. amounted to $90,904,984. Of this amount, $38,820,468 went for railway freight cars, $8,893,300 for passenger cars, $429,443 for mail and express care, $11,908,804 for steam locomotives, and $11,830,133 for locomotives other than steam.

Club Meeting

The New England Railroad Club will hold its annual banquet and entertainment on May 9 at 6:30 p. m. at the Copley-Plaza hotel, Boston, Mass.

I. C. C. Modifies Broker Order

Division 5 of the Interstate Commerce Commission has vacated, insofar as it relates to brokers, its order of August 3, 1936 in Ex Parte No. MC 5, dealing with surety bonds. The commission has further ordered that until further order brokers shall not be required to comply with the rules and regulations prescribed in the August 3, 1936 order, until 60 days after the date of the determination by the commission of their respective applications for licenses, provided, however, that, as to any of such applications heretofore determined by the commission, applicants shall not be required to comply with such rules and regulations until 60 days after the date of the present order.

Beaver-Mahoning Hearings Shelved

The House committee on rivers and harbors has postponed indefinitely the hearing on the proposed Beaver-Mahoning canal. The hearings were last scheduled to begin on April 11.

A South-Florida Dissent on Proposed Ship Canal

Senator King, Democrat of Utah, inserted in the April 11 issue of the Congressional Record a letter which he had received from C. D. Leffler, president of the Miami (Fla.) Chamber of Commerce, taking exception to a statement that "Floridans are wholeheartedly in favor of the proposed cross-state canal," which Mr. Leffler said was made recently to the House committee on rivers and harbors by Governor Cone of Florida.

It was Mr. Leffler's contention that "South Florida will face irreparable loss through the completion of this canal"—it would be "absolutely ruinous" to that area, "which includes two-thirds of Florida's population."

Red Cap Order Extended to Cities Under 100,000

Division 3 of the Interstate Commerce Commission has modified its order of September 29, 1938 in the Red Cap case which placed Red Caps in cities of 100,000 or over under the jurisdiction of the Railway Labor Act, so as to include those employed in cities of 100,000 or less, based on the 1930 census.

At the same time Division 3 has ruled that the work defined as that of an employee or subordinate official in the orders of the commission now in effect includes the work of general yardmasters, terminal trainmasters, trainmasters, and their respective assistants at points on the Denver & Rio Grande Western, so as to bring them within the term "employee" as used in the fifth paragraph of section 1 of the Railway Labor Act.

U. S. C. of C. Will Hold Round Table on Transportation

The United States Chamber of Commerce has announced that a round table conference on transportation will be held on May 2 as a part of its four-day annual meeting to be held in Washington, D. C. on May 1 to 4. The transportation round table will take up the question of a program for railroad legislation from the standpoint of the railroads, the shipper, the investor and competing forms of transportation. Arthur M. Hill, president of the Atlantic Greyhound Corporation, will preside and the leaders of the discussion will include a railroad leader; W. H. Day, manager of the transportation bureau of the Boston Chamber of Commerce; Leslie Craven, New York attorney; and David H. Howie, vice president of the Fiduciary Trust Company of Boston, Mass.

Budd Minds the Weather at N. Y. Fair

In connection with the outdoor exhibit of the Edward G. Budd Manufacturing Company in the railroad section of the New York World's Fair, four large stainless steel umbrellas, each wide enough to protect 2,150 persons from the rain, will be erected. Each umbrella will be 60 ft. in diameter, but will be relatively light in weight, due to the use of stainless steel.

The Budd exhibit will occupy more than an acre of ground at the exhibit facing the "court of railways," and will include illustrations of the company's transportation products. The four umbrellas will be placed in a semi-circular arrangement facing a garden center of hedges and shrubbery. In the middle of the exhibit will be erected what is believed to be the largest weather vane ever built, constructed of stainless steel and rising 90 ft. into the air.

Lackawanna Sends Old and New Equipment to N. Y. World's Fair

The equipment exhibit of the Delaware, Lackawanna & Western to be shown at the New York World's Fair was expected to arrive at the fair site April 15 after exhibition at various points along the road's main line from Scranton, Pa., to Hoboken, N. J. The group consists of old locomotive No. 952, a "Mother Hubbard" type of the 4-4-0 wheel classification in service on the road between 1900 and 1937; a modern passenger locomotive bearing the number 1939; a present-day refrigerator car and a special lading car for handling bulk cement. Locomotive No. 952 will be presented to the Railway & Locomotive Historical Society at the close of the Fair. Locomotive 1939 has been fitted with a side panel, skirting the boiler upon which is inscribed "Pocono Mountain Route," while the name of the railroad has been applied in gold leaf on the tender, together with striping in silver leaf.

U. P.'s Old and New to Tour Country

The old and the new, an old-time train consisting of a wood burning locomotive and two coaches, and the steam electric locomotive with modern cars of the Union Pacific, will begin an extensive tour of the country on April 28, following the world premiére of the film, "Union Pacific." The train will start from Los Angeles on April 24, and after a full-day exhibit at Omaha on April 28, will travel over the Chicago & North Western to Chicago where it will be exhibited on April 29 and 30; over the New York Central and Michigan Central to Detroit on May 1; over the New York Central to Albany on May 1 to 3; over the Boston & Albany to Boston and return to Albany on May 3 to 5; over the New York Central and West

Shore to New York on May 5; over the Pennsylvania to Louisville, Ky., on May 8 to 12; over the Baltimore & Ohio to St. Louis on May 13 and 14; over the Alton to Kansas City on May 14 and 15, and over the Union Pacific to Los Angeles on May 15 to 17. The train will stop for public inspection at 26 points, for intervals ranging from 15 minutes to two days.

New Haven to Inaugurate Half-Hour Service in Westchester May 1

The New York, New Haven & Hartford will inaugurate half-hourly suburban service on week-days and Saturdays to and from points in Westchester county south of Port Chester, N. Y., and Grand Central terminal, New York, effective May 1. Instituted to give Westchester county suburban communities more frequent service during the non-commuting hours, 14 additional round-trips daily will be operated. Commuting trains will not be affected by the new schedule.

Trains will run every 30 minutes, at 25 and 55 minutes past the hour, from Grand Central to Westchester stations from 7:35 a. m. to 12:25 a. m., with an additional train leaving at 1:30 a. m. On Sundays out-bound trains will run every hour at 25 minutes past the hour. Trains from Westchester county will arrive at Grand Central at 10 minutes and 40 minutes past the hour from 7:30 a. m. to 12:10 a. m., with an additional train arriving at 1:15 a. m. On Sundays in-bound trains will run every hour. arriving in New York at 40 minutes past the hour. Port Chester, Rye, Harrison, Mamaroneck, Larchmont, New Rochelle, Pelham, Columbus avenue, and Mt. Vernon are affected by the new service. All trains will stop at 125th street, Manhattan.

Motor Carrier Operations

The New England Transportation Company, a wholly-owned motor carrier subsidiary of the New York, New Haven & Hartford, has been authorized by Division 5 of the Interstate Commerce Commission to continue operation as a common carrier by motor vehicle, of general commodities, with certain exceptions, in interstate and foreign commerce, over specified routes and over irregular routes from and to off-route points within 15 miles of the specified routes in Massachusetts, Rhode Island, Connecticut, New York, and New Jersey, because of "grandfather" rights.

At the same time Division 5 denied this company's application to operate as a contract carrier over these routes under the "grandfather" clause of the Motor Carrier Act.

Division 5 has also authorized the Greyhound Corporation to acquire control of the Central Greyhound Lines, a motor carrier affiliate of the New York Central, and the Northland Greyhound Lines, a motor carrier affiliate of the Great Northern, by purchase of additional capital stock. Commissioner Lee dissented, saying that he believed the only object of Greyhound obtaining control of these two companies was to make it possible for them to say to the commission that they were not railroad-controlled when they applied for authority to buy out some of their competitors.

Rutland Gets Tax Cut

The Vermont Tax Appeal Board has further reduced its appraisal of the Rutland property from $8,064,000 to $6,064,000. Together with the original reduction earlier in the year from $10,708,000 to $8,064,000, thus cuts the road's Vermont taxes to $60,640, as compared with $126,000 for 1938, a reduction of approximately 52 per cent. The road estimates that its New York state taxes for 1939 will be approximately $57,816, which is a reduction of 42.6 per cent from 1937.

The Seaboard Air Line would be authorized to operate as a common carrier by motor vehicle, in interstate commerce, of general commodities, between Tampa, Fla., and Sebring, over a specified route, if the Interstate Commerce Commission adopts a recommended report and order by Joint Board No. 205, composed of Eugene S. Matthews of Florida.

Hopes to Report Rivers and Harbors Bill Soon

Chairman Mansfield of the House committee on rivers and harbors thinks that committee should report a rivers and harbors bill "as soon as possible"—so he told Representative Parsons, Democrat of Illinois, who expressed concern that more than three months of the present session has gone by without anything "very definite" having been done about a rivers and harbors bill, "except to conduct hearings on a few new projects."

The correspondence between Chairman Mansfield and Representative Parsons, who is a member of the committee, was published in the April 10 issue of the Congressional Record. After noting his abovementioned disposition to report a bill as soon as possible Chairman Mansfield went on to say, among other observations, that in his opinion the railroads are "short-sighted" in their opposition to waterway projects, because "in the long run the various forms of transportation aid each other."

"The waterway planning both for urgent construction and for long-range improvements is in excellent shape," the Mansfield letter continued. "The army engineers have investigated thoroughly and after digested consideration have supplied our committee with a large number of excellent projects throughout the United States."

March Employment Above Same Month Last Year

Railway employment increased 0.62 per cent—from 941,979 to 947,862—during the one-month period from mid-February to mid-March, while the mid-March total was 2.17 per cent above that of March, 1938, according to the Interstate Commerce Commission's compilation, based on preliminary reports. The index number, based on the 1923-1925 average as 100 and adjusted for seasonal variation, stood at 54.6 for March as compared with 53.4 for March, 1938.

March employment in all groups, save those embracing yardmasters, switch-tenders, and hostlers and train and engine service (down 1.14 and 0.34 per cent, respectively) was up from the previous month, but all except maintenance of way and structures, maintenance of equipment and stores, and train and engine service were off from the March, 1938 figures. The largest decline as compared with last year was in the executives, officials, and staff assistants group which was off 3.64 per cent; next, in turn, came professional, clerical and general, off 3.41 per cent, and yardmasters, switch-tenders, and hostlers, off 3.32 per cent.

The largest increase as compared with mid-February was reported for the maintenance of way and structures group; it was up 2.27 per cent, while maintenance of equipment and stores was up 0.95 per cent.

Freight Car Loading

Loading of revenue freight for the week ended April 8 totaled 535,470 cars, the Association of American Railroads announced on April 13. This was a decrease of 68,771 cars, or 11.4 per cent, below the preceding week due largely to a reduction in coal production because of the pending wage negotiations, an increase of 13,421 cars, or 2.6 per cent, above the corresponding week in 1938, and a decrease of 175,609 cars, or 24.7 per cent, below the same week in 1937.

As reported in last week's issue, the loadings for the previous week ended April 1, totaled 604,241 cars, and the summary for that week, as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loadings

For Week Ended Saturday, April 1

Districts	1939	1938	1937
Eastern	138,162	115,471	166,791
Allegheny	121,185	100,350	153,954
Pocahontas	41,815	28,512	40,894
Southern	96,404	87,363	116,648
Northwestern	69,589	63,562	79,670
Central Western	93,371	86,016	108,075
Southwestern	43,715	42,215	55,197
Total Western Districts	206,675	191,793	242,942
Total All Roads	604,241	523,489	721,229
Commodities			
Grain and Grain Products	32,087	31,571	31,683
Live Stock	10,774	10,948	10,789
Coal	104,725	73,550	118,502
Coke	5,991	3,947	10,815
Forest Products	27,129	23,814	38,422
Ore	9,108	5,178	12,896
Merchandise L.C.L.	157,406	154,314	174,258
Miscellaneous	257,021	220,167	323,864
April 1	604,241	523,489	721,229
March 25	605,462	572,952	756,416
March 18	594,568	540,365	754,922
March 11	591,691	556,730	744,499
March 4	598,691	552,892	730,329
Cumulative Total, 13 Weeks	7,594,505	7,158,681	9,185,301

Highway Debt of Canadian Provinces in 1937 Twice Entire 1919 Debt

Debt incurred for the construction and maintenance of highways alone by the nine Canadian provinces reached $569,719,611 by the close of 1937, or almost twice the entire net debt (excl. sinking funds) of the provinces for all purposes as of 1919, according to a study entitled "The Highway and the Motor Vehicle in Canada—1937" recently issued by the Canadian Department of Trade & Commerce. In addition to provincial expenditures, which pro-

vide the bulk of highway funds, the Dominion government granted subsidies under the Highway Act of 1919 and unemployment and agricultural assistance acts totaling $62,526,662 from 1919 to 1937, inclusive.

The conclusion is reached that an estimated total revenue of $600,000,000 received from registration fees and gasoline taxes from 1919 to 1937, inclusive, is probably in excess of expenditures *by the provinces* on highway construction during these years "but considerably less than the total expenditures exclusive of the additional expenses and interest on money borrowed for highway purposes."

Tables show total expenditures by all political entities for the construction and maintenance of all roads and streets, 1919 to 1937, inclusive, to aggregate $1,004,924,148 of which the provinces were directly responsible for $795,642,356, the Dominion for $18,092,776; and municipalities for $191,189,016. Revenues received by the provinces from operator and vehicle registrations, gasoline taxes and other user-fees, from 1922 to 1937, inclusive (first gasoline tax levied by Alberta in 1922) totaled $580,756,560, or approximately 72 per cent of the $795,642,356 spent by the provinces alone for highways between 1919 and 1937.

Nationalization of Two More Argentine Roads Proposed

The purchase of the Argentine North Eastern and the Entre Rios by the Argentine government is proposed in a bill recently submitted to the Chamber of Deputies by representatives of the province of Entre Rios. The purchase proposal, which follows close upon nationalization of the Cordoba Central and Transandine, is in line with a plan for government ownership of all railroads in the country, announced by President Justo last year.

The chief feature of the plan is that the government's purchase price may not exceed 61.3 per cent of the capital value of the properties as computed by the Argentine director-general of railways. This maximum is further conditioned by the clause that the purchase price must be lower than the present appraised value of the assets after deduction of depreciation. Stores material on hand would be purchased at an appraised value of £198,254 ($983,340) for the Entre Rios and £82,402 ($408,714) for the Argentine North Eastern. Purchase would be made from the proceeds of a bond issue bearing interest at 4 per cent, with a sinking fund of 1 per cent. The Argentine North Eastern, a British-owned company, operates 753 miles of standard-gage track and 72 locomotives, 81 passenger cars, 2 rail-motor cars, and 1,077 freight cars. It has an issued capitalization of £7,397,690, including stocks and bonds. The Entre Rios, also British-owned, operates 809 miles of standard-gage track, 98 locomotives, 143 passenger cars, 6 rail-motor cars and 2,144 freight cars and has a total capitalization of £8,922,189.

Bus Revenues Up 9 Per Cent in December

Revenue and traffic statistics of Class I motor carriers of passengers are compiled in a monthly statement which the Interstate Commerce Commission's Bureau of Statistics and Bureau of Motor Carriers have recently begun to issue. The compilation is Statement No. M-700 (BT), and those for the latter months of 1938 have all come out within the last two weeks or so, the December figures having been made public on March 31.

Compiled from 157 monthly reports representing 158 bus operators, the December figures show total revenues for all regions at $10,609,393, an increase of 9.2 per cent over December, 1937's $9,711,701. Passengers carried meanwhile increased eight per cent or from 11,812,170 to 12,754,411. The figures by regions are shown in accompanying table.

	Passenger Revenue		Passengers Carried	
	December 1938	December 1937	December 1938	December 1937
New England Region	$444,331	$397,216	1,059,680	1,036,723
Eastern District, excluding New England	2,882,649	2,355,998	4,719,803	4,154,983
Southern District	2,563,820	2,320,771	2,923,641	2,724,196
Western District	4,718,593	4,637,716	4,051,287	3,896,268

Would Force Industries to Maintain Spur Tracks

A series of recommendations has been made to the Interstate Commerce Commission by Examiner Chester N. Stiles in I. & S. Docket No. 4419 dealing with switching charges by the Sioux City Terminal in Sioux City, Iowa, which would result in a substantial increase in railroad income and which would at the same time relieve the carriers of an important expense burden. Although the proposed report deals specifically with the situation at Sioux City, the recommendations, if adopted by the commission, would apply nationally and would affect virtually all carriers and shippers.

Briefly, Mr. Stiles made the following recommendations:

1. That the entire burden of maintaining industrial spur tracks, paying taxes thereon, and a return on the investment be shifted to the industry served;

2. That shippers pay in all cases the cost of cleaning cars;

3. That wherever shippers operate private refrigerator or tank cars, the cost of switching such cars to and from cleaning and repair tracks be charged to the owners of the cars; and

4. That where a shipper does his own icing, he be required to pay the cost of switching to and from the icing docks.

At the commission it was said that if industry bore the cost of maintenance, taxes and return on spur tracks, railroad income would be increased "by several million dollars annually." It was also pointed out that the shifting of some other expenses to the shippers would relieve the carriers of "probably hundreds of thousands of dollars" in operating costs.

The examiner's proposed report is the result of a detailed study of the industrial service at Sioux City, involving the three meat packing firms of Swift & Co., Armour & Co., and Cudahy Packing Company. The examiner recommended that these companies and others having the use of private industrial tracks owned by the Sioux City Terminal be required to pay "the proper costs" in connection with the tracks which would result in the collection by the railroad of $47,757 annually in ad-

Big Business, Not Politicians, the Principal Opponent of Railway Recovery

"There is nothing more significant regarding the present transportation situation than the sources from which comes the principal opposition to legislation to equalize government treatment of the railways and other carriers. It comes from certain Big Business special interests. They demand reductions of government expenditures in general—but also demand continuance of huge expenditures on inland waterways and on highways strong and expensive enough for heavy buses and trucks. They denounce government competition with business in general—but also oppose legislation to withdraw government aid from carriers competing with the railways.

"Demands for fair government treatment of private business in general come with mighty poor grace from Big Business interests that are, for their own selfish reasons, opposing legislation essential to fair government treatment of such a large private business as the railroads. They declare themselves opposed to government ownership of railroads, while doing all they can to destroy the earning power of the railroads and drive them into government ownership. They oppose their special interests to the public interest, which is to have the railways financially and physically rehabilitated under private ownership.

"Once the public understands what is really involved it will force adoption of federal and state legislation necessary to the public welfare because necessary to stop the bleeding of the railways to death for the real or supposed benefit of certain Big Business special interests."

From an Address by Samuel O. Dunn at Flint, Mich., on April 6

ditional revenue. However, because of a suggested revision of switching charges, the net gain to their terminal railroad would be reduced to $22,865.

After placing a definite value on the spur tracks serving the packers, the examiner said that the terminal railroad should be expected "either to dispose of this property by sale or to collect track rentals" from the companies for all maintenance, taxes and an annual return on value of 5¾ per cent.

Hearings Continued in G. M. & N. M. & O. Merger Case

Hearings on the merger plan of the Gulf, Mobile & Northern and the Mobile & Ohio were continued before the Interstate Commerce Commission during the past week. The commission, at the April 7 session, heard from I. B. Tigrett, president of the Gulf, Mobile & Northern, that the plan for consolidating his road with the Mobile & Ohio was the best which could be devised under the circumstances, and expressed the view that it was fair to all concerned and provided a conservative capital structure for the new company.

Mr. Tigrett also told the commission that the proposed purchase of the Southern's bond interest in the M. & O. for $7,300,000 was a worth-while investment for his road regardless of whether or not the proposed merger is consummated.

At the April 11 session F. L. Thompson, vice president and chief engineer of the Illinois Central, opposed the proposed merger and suggested to the commission that both roads be allocated to the Illinois Central under the commission's official plan of railroad consolidation. Mr. Thompson would have the roads placed in the I. C. system, system No. 10 instead of in system No. 8, the Atlantic Coast Line. Under the official plan adopted in 1929, the Mobile & Ohio is allocated to system No. 11, the Chicago & North Western, and the Gulf, Mobile & Northern is allocated to system No. 8, the Atlantic Coast Line.

Mr. Thompson told the commission that his principal objection to the merger was that it might lead to the establishment of an entirely new and unnecessary trunk line. He also thought that the unification of the G. M. & N. and the M. & O. with the Illinois Central would result in substantial operating economies.

Oral Argument Held in Milwaukee Case

An inference that the record was so incomplete that the commission could not write a final plan of reorganization for the Chicago, Milwaukee, St. Paul & Pacific at this time was made by R. T. Swaine, counsel for the debtor company, when oral argument was held before the Interstate Commerce Commission on April 12. Although Mr. Swaine did not come out directly and say as much, yet he left the implication that the debtor company felt nothing should be done at this time towards bringing out a final plan of reorganization for the road. This belief is founded on the fact that certain studies that have been undertaken are incomplete, and Mr. Swaine contended that the commission would not be able to properly allocate securities of the new company on the basis of the information which it now has.

K. F. Burgess, representing the Institutional Bondholders' Committee, told the commission that the examiner's proposed plan was even more drastic than the bondholders' plan. He also objected to the provision of the examiner's plan which would permit the present preferred stockholders to receive warrants permitting them to purchase new common stock at a fixed price. He went on to say that the present preferred stock not only has no value now, but that it lost its value long before the present depression, closing by asking the commission to adopt the bondholders' plan.

The Mutual Savings Banks, represented by Fred N. Oliver, took the position that reorganization should be expedited and that long delay would aid no one. He told the commission that if it grants a delay, it is doing nothing more than turning the case over to the parties involved. He also accused the debtor company of what he termed a "sit-down strike" because of its failure to bring out a plan of reorganization as the law requires it to do.

Cassius M. Clay, railroad counsel for the Reconstruction Finance Corporation, advised the commission that his organization agreed with the proposition that the preferred and common stocks of the Milwaukee had no value and should not participate in the reorganization.

Revised Specifications for Passenger Equipment

Revised specifications for passenger equipment recommended by the General Committee of the Association of American Railroads' Mechanical Division were approved by the A. A. R. board of directors at its Washington, D. C., meeting on March 31. The board also directed that the specifications thus approved be transmitted to member roads for adoption as recommended practice of the A. A. R.

The revised specifications were sent out to member roads on April 4 with a letter from A. A. R. President J. J. Pelley. The material accompanying Mr. Pelley's letter reveals that the revised specifications were prepared on a basis whereby they will produce passenger cars suitable for use with cars of all types of construction, now in service and built in accordance with Railway Mail Service Specifications, as revised July 30, 1938—with the result that new and existing cars will satisfactorily operate together with maximum protection under all conditions of service.

Reviewing developments leading to the adoption of the revised specifications, the Pelley letter to member roads recalls that on January 9, 1939, a Special Engineering Committee of the Mechanical Division was appointed to prepare in co-operation with car builders and materials manufacturers a set of minimum specifications to cover future construction of new passenger cars. Specifications were prepared and submitted to the A. A. R. board on February 24, whereupon the board directed the Mechanical Division to submit such specifications to member roads for comment and suggestions. On the basis of such comment and suggestions, the Mechanical Division's Special Engineering Committee prepared a revised set of specifications which was approved by the General Committee and recommended for adoption as recommended practice.

Fire Protection Association Comes into A. A. R.

Formation as part of the Association of American Railroads of a Fire Protection and Insurance Section, the membership of which is largely made up of railway officers engaged in fire protection and prevention activities on the Class I railroads of the United States and Canada, was announced on April 7 by J. J. Pelley, President of the A. A. R. This section takes the place of the Railway Fire Protection Association which was originally organized in 1913 but which has decided to terminate its affairs as an independent organization and become a part of the A. A. R.

The Railway Fire Protection Association has, since its original organization, devoted its attention to the subject of fire protection and preventive measures and due to its activities in cooperation with the individual railroads, losses resulting from fires have been materially reduced, according to an A. A. R. announcement. In 1937 fire losses on American railroads amounted to $3,750,707, a decrease of 17 per cent compared with those in 1928.

This will be the first time that the A. A. R. or its predecessor the American Railway Association has ever had a section which devoted its attention entirely to the matter of fire protection and prevention and the allied item of insurance. The objectives of this new section will be "the improvement of methods of fire protection and prevention, the circularization of information on these subjects, the establishment of safeguards against loss of property and life by fire and the standardization of practices through the interchange of ideas and experiences," continues the A. A. R. statement.

The officers of the Fire Protection and Insurance Section for the coming year are W. F. Hickey, superintendent of insurance, New York, New Haven and Hartford, chairman; W. A. Radspinner, superintendent of fire prevention, Chesapeake and Ohio, vice chairman; and W. F. Steffens, chief fire protection engineer, New York Central, secretary.

The members of the committee of direction are: F. Palin, insurance commissioner, Canadian Pacific; S. O. Cutler, general fire inspector, Delaware and Hudson; E. M. Strauss, fire protection engineer, Union Pacific; G. A. W. Achenbach, assistant secretary, Erie; L. J. Molloy, superintendent of insurance, Seaboard Air Line; J. H. Chappell, supervisor, fire prevention and insurance, Wabash; W. E. Cathcart, chief fire inspector, Pennsylvania; W. A. Radspinner, superintendent of fire prevention, Chesapeake and Ohio; W. H. Klinsick, fire prevention engineer, Chicago, Burlington & Quincy; W. F. Hickey, superintendent of insurance, New York, New Haven & Hartford; R. R. Hackett, superintendent of insurance, Baltimore and Ohio; G. R. Hurd, superintendent of fire protection, Illinois Central.

Equipment and Supplies

Missouri Pacific Buys $5,000,000 of New Equipment

The Missouri Pacific has ordered two streamlined trains, the locomotives being placed with the Electro-Motive Corporation and the cars with the American Car and Foundry Company. Each of the trains will consist of a 2000-hp. locomotive, a mail-baggage car, a mail-storage-express car, two deluxe coaches, a diner-cocktail-lounge car and a parlor-observation car. They will be placed in service between St. Louis, Mo., and Omaha, Neb., on a schedule of 9-hr.

The Missouri Pacific has also ordered five Diesel-electric switching locomotives, two 900-hp., two 600-hp. and one 1,000-hp. from the Electro-Motive Corporation. It has also ordered one 1,000-hp. Diesel-electric switching locomotive from the Baldwin Locomotive Works, and another from the American Locomotive Company.

Orders for 1,025 gondola cars and 125 box cars have been placed with the Mount Vernon Car Manufacturing Company. Of these, the box cars and 25 gondola cars are for the Missouri-Illinois.

LOCOMOTIVES

THE PHELPS DODGE CORPORATION has ordered four Diesel-electric locomotives of 1,000-hp. from the Electro-Motive Corporation.

THE WABASH CAR & EQUIPMENT COMPANY has ordered three 600-hp. Diesel-electric switching locomotives of 100 tons' weight from the Electro-Motive Corporation. An order has also been given to the American Locomotive Company for one 600-hp. Diesel-electric switching locomotive of 100 tons' weight, this locomotive is to have General Electric electrical equipment. These locomotives will be leased to the receivers of the Wabash Railway Company.

FREIGHT CARS

THE UNION RAILROAD COMPANY is inquiring for 10 steel caboose cars.

THE DESPATCH SHOPS, INC., will build 200 all-steel, bulk cement, covered hopper cars of 70 tons' capacity, in its shops at East Rochester, N. Y.

THE CENTRAL OF BRAZIL has renewed its inquiry for about 1,000 freight cars. Waldemar Coimbra Luz, is general manager, Praca da Republica, Rio de Janeiro, Brazil.

THE UNION TANK CAR COMPANY is inquiring for from 10 to 30, Class 103, tank cars, of the three compartment type and of 4600-gal. capacity.

IRON AND STEEL

THE VIRGINIAN has ordered 4,000 tons of rail. The order was divided between the Carnegie-Illinois Steel Corporation—1,000 tons and the Bethlehem Steel Company—3,000 tons.

MACHINERY

THE MISSOURI PACIFIC has placed an order with the Hoffmann-Marquard Iron & Machinery Company, St. Louis, Mo., for a planer and matcher to be built by the Yates-American Machinery Company, Beloit, Wis., for use at its machine shop at DeSoto, Mo. An order has been placed with the R. R. Stephens Machinery Company, St. Louis, for two 24-in. vertical boring mills, to be built by the Bullard Machine Tool Company, Bridgeport, Conn., for installation in the railroad's Ewing avenue shops at St. Louis, and the roundhouse machine shop at North Little Rock, Ark. A 30-in. engine lathe has been ordered from the Lehmann Machine Company, St. Louis, for installation in the railroad's machine and erecting shop at Kansas City. A punch and shear has been ordered from Williams, White & Company, Moline, Ill., for use in the railroad's shops at DeSoto. An order has been placed with the Blackman & Neutzel Machine Company, St. Louis for a machine to process locomotive bolts, which is being built by the Sunstrand Machine Company, Rockford, Ill., for installation in the shops at Sedalia.

SIGNALING

MISSISSIPPI.—The Mississippi State Highway Department will receive sealed bids until 10:00 a. m., April 25, on all (remaining) materials necessary for the installation of electric flashing highway crossing signals to be installed at Becker, Miss., under federal aid grade crossing project, No. W.P.G.S. 306, Monroe county. E. D. Kenna is director, Jackson, Miss.

Supply Trade

Charles L. Heater, assistant vice-president of the **American Steel Foundries,** Chicago, has been elected vice-president.

H. B. Spackman, vice-president in charge of sales of **Lyon Metal Products, Inc.,** Aurora, Ill., has been elected a director.

F. C. Meyer has been assigned to the Chicago office of the **Armstrong Cork Company,** Lancaster, Pa. He will be in charge of transportation sales in that territory for the company's industrial division.

Lyon McCandless has been appointed vice-president of the **H. K. Porter Company,** Pittsburgh, Pa. Mr. McCandless is also vice-president of the Burgess Company, Inc., Beaver Falls, Pa.

Wallace G. Smith has been appointed sales representative of **The Birdsboro Steel Foundry & Machine Co.,** Birdsboro, Pa. Mr. Smith was formerly with The Baldwin Locomotive Works and The Cramp Brass & Iron Foundries Co.

Harry Glaenzer, vice-president of **The Baldwin Locomotive Works,** assumed new and enlarged responsibilities in connection with the engineering activities of the company, effective April 8. He will henceforth devote all his time to research and investigation in an effort to develop

Harry Glaenzer

advances and improvements in the field of railway motive power. Mr. Glaenzer received his education in the technical schools of Baltimore, Md., and the University of Pennsylvania. He first became connected with the engineering department of The Baldwin Locomotive Works in March, 1899, and was appointed vice-president in charge of engineering on July 1, 1922. During his long term of service, railway motive power has undergone a remarkable development, in which Mr. Glaenzer has played a conspicuous part. **Ralph P. Johnson** has been appointed chief engineer succeeding Mr. Glaenzer.

OBITUARY

William H. Fogarty, Sr., assistant vice-president of the Johns-Manville Corporation, with headquarters at Chicago, died of a heart ailment on April 9, in Evanston, Ill.

Ralph Brown, district sales manager of the Adams & Westlake Company, Chicago, died in that city on April 4 of coronary

Ralph Brown

thrombosis. Mr. Brown was born in Chicago on December 2, 1874, and as a young man entered the service of A. B. Pullman.

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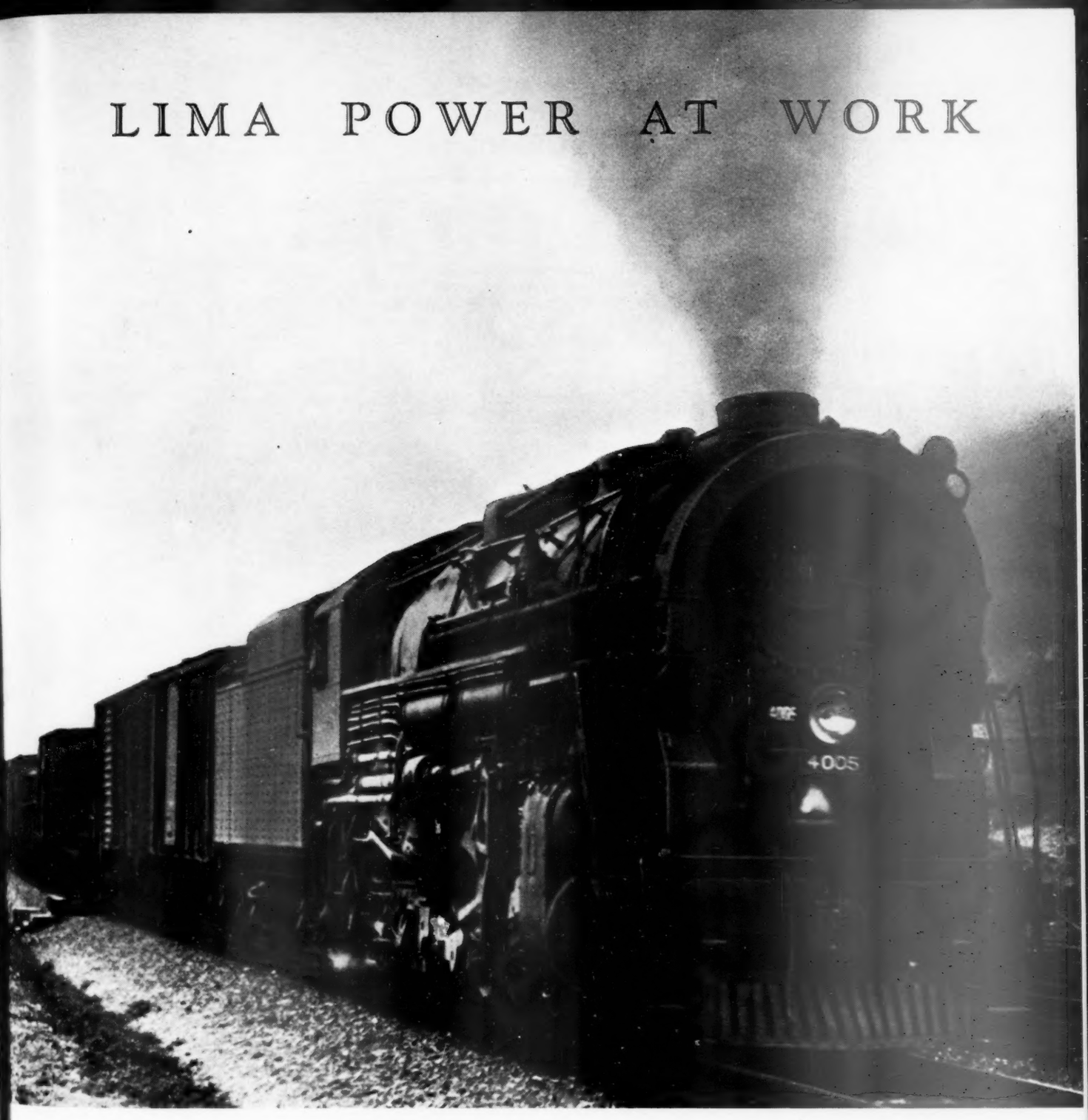
LIMA POWER AT WORK



Modern Locomotives Cut Operating Costs

Operating conditions today demand the pulling of heavier trains at higher speeds.

Only by using locomotives capable of producing higher horsepower can train movement be speeded up and tonnage increased.

Modern Locomotives start maximum train loads for a given weight on drivers, and have the POWER to pull such loads at higher speeds. RESULT---LOWER OPERATING COSTS.

LIMA LOCOMOTIVE WORKS, LIMA LOCOMOTIVE WORKS INCORPORATED INCORPORATED, LIMA, OHIO

Later he formed his own company for the sale of railroad supplies, and after several years entered the employ of the Barney & Smith Car Company, where he became general sales manager. He became affiliated with the Curtain Supply Company on July 1, 1916, and with the Adams & Westlake Company when it took over the former company.

Construction

CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS.—Division 4 of the Interstate Commerce Commission has ordered that the time within which this company shall complete the construction of a line in Gibson and Warrick Counties, Indiana, be extended to April 1, 1940.

MISSOURI PACIFIC—The R. J. Reid Construction Company, Birmingham, Ala., was the low bidder, with a bid of approximately $144,600 for the construction of the approaches to a new highway bridge across the Mississippi river at Natchez, Miss. This work will include a highway underpass under a track of the Natchez & Southern (part of the Missouri Pacific system) which will cost approximately $18,200.

SOUTHERN PACIFIC.—A contract amounting to $276,900 has been awarded by the State of California, Department of Public Works, to Heafey-Moore, Fredrickson and Watson Construction Company, Oakland, Cal., for the construction of the University avenue grade separation in Berkeley, Cal. The steel and reinforced concrete structure, which crosses over the tracks of the Southern Pacific, will be 922 ft. long and will consist of 15 spans 40 ft. long, two spans 85 ft. long and one span 118 ft. in length. The deck will consist of reinforced concrete slabs on steel girders, providing two 25-ft. roadways with a 4-ft. dividing strip between.

STATEN ISLAND RAPID TRANSIT RAILWAY COMPANY, (BALTIMORE & OHIO SUBSIDIARY).—A contract has been let to the Poirier & McLane Corporation, New York, for general construction-elimination of grade crossings, from Great Kills to Huguenot, Staten Island, New York, to cost about $900,000. Bids are wanted by the chief engineer at the office of the assistant engineer, Springstead building, Great Kills, Staten Island, N. Y., until 1 p. m. (e.s.t.), April 24, for general construction Tottenville, grade crossing elimination project, H. A. Lane, chief engineer.

UNION PACIFIC.—A contract amounting to about $30,000 has been awarded the Valley Construction Company, San Jose, Cal., by the State of California, Department of Public Works, for the reconstruction and extension of the Union Pacific bridge over San Gorgonio Wash, a few miles south of Banning, Cal., to provide a highway underpass at one end of the bridge. The project includes new reinforced concrete girder spans and bank protection work.

Financial

BOSTON & MAINE.—*Notes.*—This company has asked the Interstate Commerce Commission for authority to waive redemption rights respecting $1,362,000 of four per cent registered serial collateral notes which are now held by the Reconstruction Finance Corporation. This action would place the R. F. C. in a position to sell the obligations publicly. The notes are a part of two issues sold to the Public Works Administration a few years ago and subsequently transferred to the R. F. C. All of the notes except the $1,362,000 have been paid off by the carrier. The road would now waive all rights to redeem the remaining notes prior to their respective maturities.

CENTRAL OF GEORGIA.—*Annual Report.*—The 1938 annual report of this company shows net deficit, after interest and other charges, of $2,991,866, an increase of $619,056, as compared with net deficit of $2,372,809 in 1937. Selected items from the income account follow:

	1938	Increase or Decrease Compared with 1937
Average mileage operated	1,918.72	-7.91
RAILWAY OPERATING REVENUES	$14,765,267	-$1,784,442
Maintenance of way	1,939,984	-319,933
Maintenance of equipment	2,960,930	-574,358
Transportation—Rail	6,592,809	-352,560
TOTAL OPERATING EXPENSES	13,029,155	-1,355,220
Operating ratio		
NET REVENUE FROM OPERATIONS	1,736,111	-429,222
Railway tax accruals	1,331,733	+278,931
Railway operating income	404,378	-708,153
Equipment rents—Net Cr.	4,803	-119,990
Joint facility rents—Net Dr.	155,194	+12,761
NET RAILWAY OPERATING INCOME	253,986	-600,924
Other income	374,498	-25,051
GROSS INCOME	628,485	-625,976
Rent for leased roads and equipment	384,851	-19,099
Interest on funded debt	2,810,226	+11,528
TOTAL DEDUCTIONS FROM GROSS INCOME	3,620,351	-6,919
NET DEFICIT	$2,991,866	$619,056

CHICAGO & EASTERN ILLINOIS.—*Reorganization Plan.*—The plan for reorganization of the Chicago & Eastern Illinois, which has been certified by the Interstate Commerce Commission, was taken under advisement by the federal district court at Chicago on April 10, with the promise of a ruling by May 16. The road informed the court that the Reconstruction Finance Corporation has agreed to assist in the reorganization by purchasing whatever new securities the open market does not absorb.

CHICAGO & NORTH WESTERN.—*Annual Report.*—The 1938 annual report of this company shows net deficit, after interest and other charges, of $15,275,983, an increase of $464,885 over net deficit of $14,811,098 for 1937. Selected items from the income statement follow:

	1938	Increase or Decrease Compared with 1937
Average Mileage Operated	8,391.07	-8.76
RAILWAY OPERATING REVENUES	$81,055,868	-$8,746,666
Maintenance of way	13,093,042	-1,849,534
Maintenance of equipment	17,538,088	-5,339,181
Transportation	34,410,320	-2,731,623
TOTAL OPERATING EXPENSES	71,046,383	-10,307,747
Operating ratio	87.65	-2.94
NET REVENUE FROM OPERATIONS	10,009,484	+1,561,080
Equipment rents—net	2,832,510	+560,846
Joint facility rents—net	189,232	+46,532
NET RAILWAY OPERATING INCOME	*125,511	-162,911
Other income	1,597,570	-303,194
TOTAL INCOME	1,472,058	-466,106
Rent for leased roads	2,920	+478
Interest on funded debt	13,452,621	-102,376
TOTAL FIXED CHARGES	16,549,740	-152,766
NET DEFICIT	$15,275,983	+$464,885

* Deficit.

CHICAGO GREAT WESTERN.—*Annual Report.*—The 1938 annual report of this road shows a net deficit, after interest and other charges, of $1,144,273, an increase of $241,910, as compared with net deficit in 1937. Selected items from the income account follow:

	1938	Increase or Decrease Compared with 1937
Average Mileage Operated	1,505.05	.....
RAILWAY OPERATING REVENUES	$17,141,964	-$1,568,407
Maintenance of way	2,432,040	-420,186
Maintenance of equipment	2,726,678	-86,230
Transportation	6,796,796	-436,198
TOTAL OPERATING EXPENSES	13,241,663	-1,019,848
NET REVENUE FROM OPERATIONS	3,900,300	-548,559
Railway tax accruals	1,060,955	-30,010
Railway operating income	2,839,345	-518,549
Net rents	2,245,869	-249,097
NET RAILWAY OPERATING INCOME	593,475	-269,452
Other income	130,160	-17,245
TOTAL INCOME	723,636	-286,697
Rent for leased roads	176,169	-493
Interest on funded debt	1,592,413	-41,897
TOTAL FIXED CHARGES	1,854,790	-43,993
NET DEFICIT	$1,144,273	+$241,910

CENTRAL OF NEW JERSEY.—*Protective Committee.*—A protective committee recently formed for holders of 4 Per Cent and 5 Per Cent general mortgage gold bonds of this road have distributed a letter to holders in which are outlined certain suggestions which the committee believes would be "material contributions to the welfare of the carrier," in addition to those outlined by the management in a statement published March 17 with respect to default of quarterly interest due April 1. The committee believes that "a more

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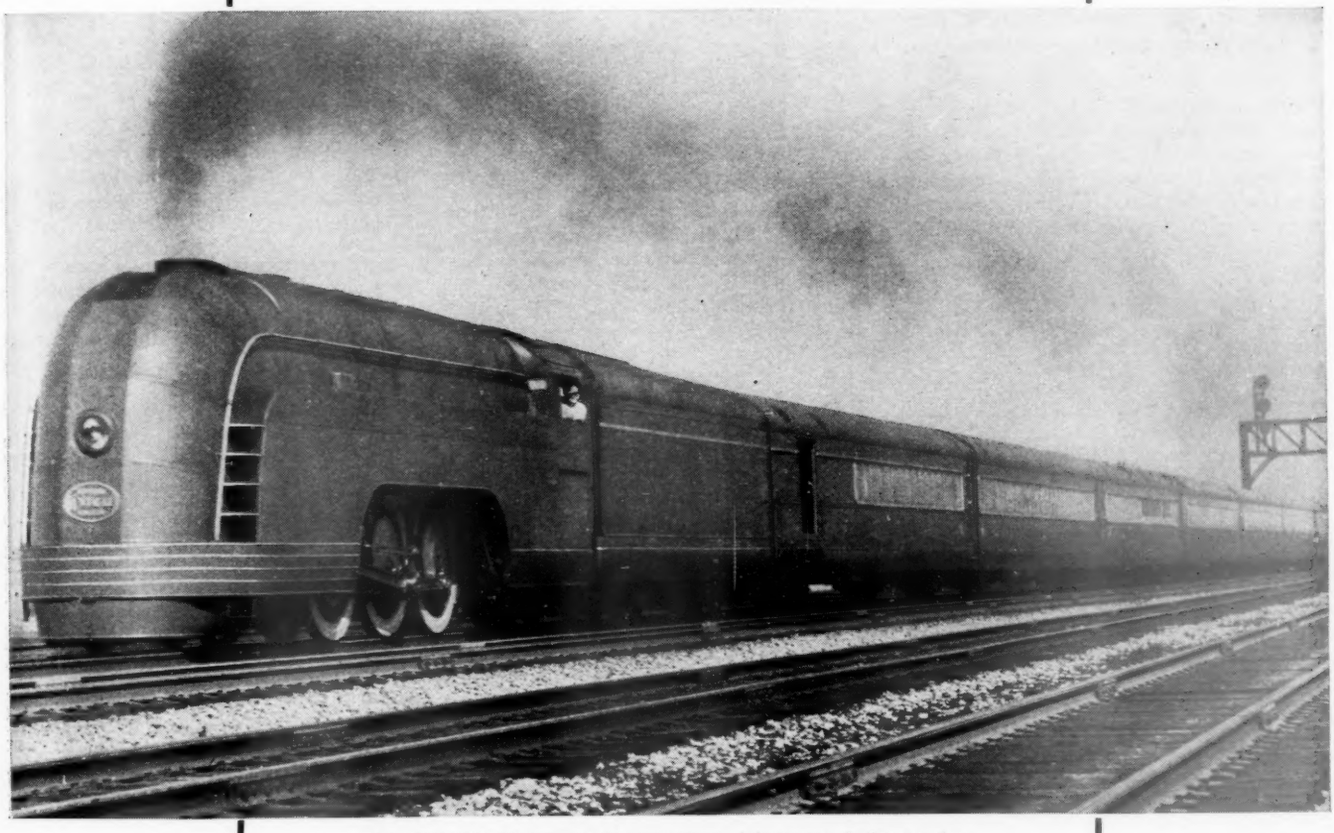
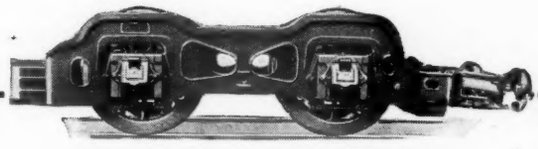
THE BOOSTER*
is needed for comfort



Booster-equipped locomotives haul many of the country's finest trains.

Luxurious, air-conditioned passenger equipment is creating new business for the railroads. » » » For complete travel comfort, however, smooth starting of the train is of utmost importance—and this is assured by the Booster. » » » The Locomotive Booster provides the additional drawbar pull necessary for smooth starting and quick acceleration thereby complementing every other effort made for passenger satisfaction and comfort. » » » Equip your locomotives with the Booster or you will nullify your efforts to increase passenger traffic.



*Trademark Registered United States Patent Office

FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK CHICAGO MONTREAL

equitable division of rates with the controlling Reading Company and a program designed to effect substantial reductions in present heavy charges for hire of equipment would be of fundamental benefit and would add substantially to the net railway operating income." The protective committee also expresses the conviction that any sacrifice on the part of the bondholders in the event of a reduction in fixed charges should be compensated in part by a voice in the management of the carrier. Eugene S. Brooks, of the Stock Exchange firm of Marshall, Campbell & Co., of New York, is chairman of the committee.

CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA.—*Annual Report.*—The 1938 annual report of this road shows net deficit, after interest and other charges, of $2,674,368, an increase of $62,274, as compared with net deficit in 1937. Selected items from the income account follow:

	1938	Increase or Decrease Compared with 1937
Average Mileage Operated	1,641.46	-6.67
RAILWAY OPERATING REVENUES	$16,752,334	-$1,425,781
Maintenance of way	2,255,730	-197,854
Maintenance of equipment	3,055,665	-472,210
Transportation	7,816,567	-818,349
TOTAL OPERATING EXPENSES	14,377,308	-1,571,180
Operating ratio	85.82	-1.91
NET REVENUE FROM OPERATIONS	2,375,025	+145,399
Equipment rents—net	910.111	-83,557
Joint facility rents—net	348,500	-21,898
NET RAILWAY OPERATING INCOME	*244,587	-70,041
Other income	67,810	+1,091
TOTAL INCOME	*176,776	-68,949
Rent for leased roads	1,702	.....
Interest on funded debt	2,329,550	-13,402
TOTAL FIXED CHARGES	2,490,924	-7,872
NET DEFICIT	$2,674,368	+$62,274

* Deficit.

EAST BERLIN.—*Dissolution contemplated.*—Notices have been sent to the stockholders of this road scheduling a meeting for April 22 at East Berlin, Pa., to consider dissolution of the company. The road, at present operated for freight service only, extends 10 miles from East Berlin, Pa., to Berlin Junction, located on the Western Maryland.

DETROIT & MACKINAC.—*Annual Report.*—The annual report of this road for the year ended December 31, 1938, shows net income, after interest and other charges, of $39,754, as compared with net deficit of $14,249 in 1937. Selected items from the income account follow:

	1938	1937	Increase or Decrease
RAILWAY OPERATING REVENUES	$877,856	$885,445	-$7,589
Maintenance of way	138,121	143,950	-5,829
Maintenance of equipment	139,265	184,640	-45,374
Transportation—Rail	306,232	313,698	-7,466
TOTAL OPERATING EXPENSES	630,599	694,643	-64,044
Operating ratio	71.83	78.45	-6.62
NET REVENUE FROM OPERATIONS	247,256	190,801	+56,454
Railway tax accruals	34,889	35,134	-245
Railway operating income	212,367	155,666	+56,700
Equipment rents—Dr.	54,032	62,899	+8,866
Joint facility rents—Dr.	1,612	1,325	+286
TOTAL INCOME	$160,055	$94,545	$65,509
Interest on funded debt	115,163	95,546	+19,616
NET INCOME	$39,754	*$14,249	$54,004

* Deficit.

FLORIDA EAST COAST.—*Annual Report.*—The 1938 annual report of this railway shows net deficit, after interest and other charges, of $1,965,525, a decrease of $216,426 as compared with net deficit of $2,181,952 in 1937. Selected items from the income account follow:

	1938	Increase or Decrease Compared with 1937
Average mileage operated	685	+.08
RAILWAY OPERATING REVENUES	$9,594,391	+$291,185
Maintenance of way	1,177,995	-38,093
Maintenance of equipment	1,754,377	-70,048
Transportation—Rail	3,169,291	-8,550
TOTAL OPERATING EXPENSES	7,002,599	-120,703
Operating ratio	73.0	-3.6
NET REVENUE FROM OPERATIONS	2,591,792	+411,889
Railway tax accruals	916,198	+15,038
Railway operating income	1,675,593	+396,850
Hire of equipment—Net Dr.	619,936	+100,024
Joint facility rents—Net Dr.	26,164	+8,911
NET RAILWAY OPERATING INCOME	1,029,492	+287,914
Other income	87,887	-6,637
GROSS INCOME	1,117,379	+281,276
Interest on funded debt	2,869,159	-33,147
NET DEFICIT	$1,965,525	-$216,426

INTERNATIONAL RAILWAYS OF CENTRAL AMERICA.—*Annual Report.*—The 1938 annual report of this company shows net income, after interest and other charges, of $930,521, as compared with net income of $1,102,428 in 1937. Selected items from the income account follow:

	1938	Increase or Decrease Compared with 1937
RAILWAY OPERATING REVENUES	$5,639,240	-$60,202
Maintenance of way	1,053,823	+131,685
Maintenance of equipment	669,048	-7,347
Transportation	1,041,324	+28,163
TOTAL OPERATING EXPENSES	3,380,158	+149,250
NET REVENUE FROM OPERATIONS	2,259,082	-209,453
Railway tax accruals	157,975	+18,194
Railway operating income	2,101,106	-227,647
Net rents	5,886	+4,007
NET RAILWAY OPERATING INCOME	2,106,992	-223,640
Other income	38,397	+5,740
TOTAL INCOME	2,145,390	-217,900
Interest on funded debt	1,155,080	-34,333
TOTAL FIXED CHARGES	1,106,355	-50,309
NET INCOME	$930,521	-$171,906

ILLINOIS CENTRAL.—*R. F. C. Loan Application Dismissed.*—Division 4 of the Interstate Commerce Commission has dismissed, at this company's request, its supplemental application for approval of the continuance in pledge by the Reconstruction Finance Corporation as part collateral security for loans heretofore made to this company of $16,654,000 of Yazoo & Mississippi Valley registered five per cent improvement bonds, which matured January 1, 1939, when extended to January 1, 1952.

LOUISVILLE & NASHVILLE.—*New Director.*—W. J. McDonald, vice-president in charge of finance and accounting, has been elected also a director to succeed the late Norman James.

MAINE CENTRAL.—*Annual Report.*—The 1938 annual report of this road shows net deficit, after interest and other charges, of $302,622, as compared with a net income of $473,547 in 1937. Selected items from the income account follow:

	1938	Increase or Decrease Compared with 1937
RAILWAY OPERATING REVENUES	$11,118,829	-$1,380,324
Maintenance of way	1,680,647	-239,303
Maintenance of equipment	1,853,589	-342,469
Transportation	4,302,922	-154,652
TOTAL OPERATING EXPENSES	8,408,158	-764,945
Operating ratio	75.62	-2.23
NET REVENUE FROM OPERATIONS	2,710,670	-615,379
Railway tax accruals	856,916	+145,825
Railway operating income	1,853,753	-761,205
Equipment and joint facility rents—Net Dr.	486,485	-43,371
NET RAILWAY OPERATING INCOME	1,367,268	-717,833
Other income	423,445	-35,641
TOTAL INCOME	1,790,714	-753,475
Rent for leased roads	659,819	+60,563
Interest on funded debt	1,298,070	-28,159
TOTAL OTHER DEDUCTIONS FROM GROSS INCOME	2,093,336	+22,693
NET INCOME (Deficit)	$302,622	-$776,169

PITTSBURGH & WEST VIRGINIA.—*Extension of R. F. C. Loans Approved.*—Division 4 of the Interstate Commerce Commission has conditionally approved the extension of time of payment for a period ending not later than December 31, 1939, of loans by the Reconstruction Finance Corporation to this company in the amount of $4,216,607, which matured December 31, 1938.

ST. LOUIS-SOUTHWESTERN.—*Interest Payment.*—The validity of payment of interest amounting to $800,000 per year on First Mortgage Bond Certificates of the St. Louis Southwestern, has been upheld by the United States Circuit Court of Appeals, the action affirming on appeal an order of the district court last year in the railroad's reorganization proceedings. Attorneys for the trust company and for a Bondholders' Protective Committee argued that full interest on the certificates has

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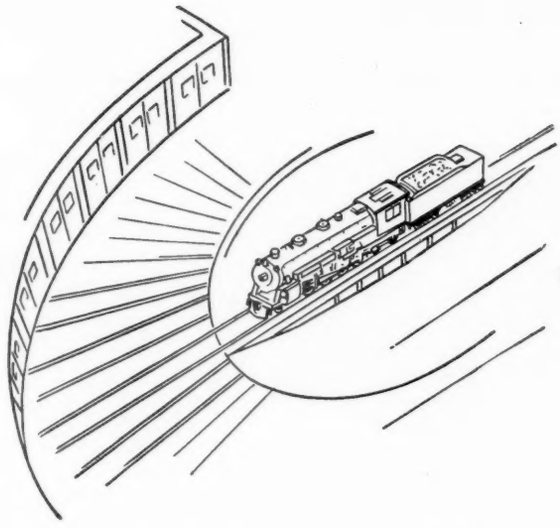
SPECIAL BRICK SHAPES ...are a nuisance



The initial standardization of Arch Brick shapes and sizes and Arch tube spacing was the work of the American Arch Company.

It is a work that goes forward constantly and saves the Stores and Mechanical Departments a vast amount of trouble.

The easiest solution to many a locomotive Arch engineering difficulty would be to use a special brick shape. But this the American Arch Company is willing to do only as a last resort. Over 50% of all Arch Brick is covered by 6 separate patterns.

The insistence of American Arch Company on adhering to standards has simplified the work of the Storekeeper and Maintenance Man. It is only one of the many ways in which American Arch Company is serving the railroads.

THERE'S MORE TO SECURITY ARCHES THAN JUST BRICK

HARBISON-WALKER REFRACTORIES CO.

Refractory Specialists

AMERICAN ARCH CO.
INCORPORATED
60 EAST 42nd STREET, NEW YORK, N. Y.
Locomotive Combustion Specialists

been paid improperly because of the alleged invalidity of a clause in the mortgage purporting to secure a guaranty of payment on first mortgage bonds of the St. Louis Southwestern of Texas. Under Missouri law, they contended, there can be no lien securing a guaranty and part of the interest money should go to holders of the terminal bonds. The Circuit Court in its decision said, "the purposes are clear, being to procure $20,000,000 for the use of the principal debtor. To secure a payment of this money and payment of interest, it was necessary to mortgage the properties of the entire system. Upon the ground that the first mortgage of the principal debtor is security for the full payment of interest upon all of the certificates, the order from which these appeals are taken should be and is affirmed." The mortgage provides for the issuance of certificates aggregating $20,000,000 by the mortgage trustee, who holds three single bonds of the Cotton Belt and its Texas subsidiary in the same aggregate amount. The Cotton Belt guaranteed payment of interest on the full amount of the certificates. The decision validates payment of $800,000 interest heretofore made pursuant to court order but subject to the appeals. A petition of the trustee is now pending before the district court which seeks to pay $400,000 interest due May 1. A hearing on this petition has been postponed to April 28.

SOUTHERN.—*Annual Report.*—The 1938 annual report of this company shows net deficit, after interest and other charges, of $497,772, as compared with a net income of $805,921 in 1937. Selected items from the income account follow:

	1938	Increase or Decrease Compared with 1937
RAILWAY OPERATING REVENUES	$89,419,109	−$9,016,304
Maintenance of way	10,565,513	−1,537,483
Maintenance of equipment	15,187,737	−3,977,819
Transportation	32,335,395	−2,546,032
TOTAL OPERATING EXPENSES	63,592,999	−8,218,204
NET REVENUE FROM OPERATIONS	25,826,110	−798,099
Railway tax accruals	7,369,018	+299,071
Hire of equipment	3,074,519	−377,507
Joint facility rents	1,039,007	+49,018
NET RAILWAY OPERATING INCOME	14,343,565	−768,680
Other income	1,883,509	−498,271
TOTAL INCOME	16,227,074	−1,266,952
Rent for leased roads and equipment	2,583,237	−5,043
Interest on funded debt	13,123,623	−57,043
NET INCOME	*$497,772	−$1,303,693

* Deficit.

Average Prices of Stocks and Bonds

	Apr. 11	Last week	Last year
Average price of 20 representative railway stocks..	25.59	27.49	24.81
Average price of 20 representative railway bonds..	56.69	59.12	55.25

Dividends Declared

Cleveland, Cincinnati, Chicago & St. Louis.—Preferred, $1.25, quarterly, payable April 29 to holders of record April 20.

Pittsburgh, Bessemer & Lake Erie.—75¢, semi-annually, payable October 1 to holders of record September 15.

Railway Officers

EXECUTIVE

J. L. McKee, assistant vice-president and general manager of the Michigan Central and vice-president of the Detroit Terminal, with headquarters at Detroit, Mich., has been elected president of the Detroit Terminal, and **P. D. Fitzpatrick,** general manager of the Grand Trunk Western, with headquarters at Detroit, has been elected vice-president of the Detroit Terminal to succeed Mr. McKee.

FINANCIAL, LEGAL AND ACCOUNTING

W. Brain has been appointed assistant auditor of the Missouri-Kansas-Texas with headquarters at Parsons, Kan., succeeding to the duties of **R. M. Kleinhaus,** car accountant.

J. M. Burford, general attorney of the Louisiana, Arkansas & Texas, with headquarters at Dallas, Tex., has been appointed also general counsel for the Texas Electric, a newly created position, with the same headquarters.

T. McAllaster, assistant land commissioner of the Southern Pacific, with headquarters at San Francisco, Cal., has been promoted to land commissioner, with the same headquarters, succeeding **C. F. Impey,** deceased.

OPERATING

S. F. Dingle has been appointed assistant superintendent on the Canadian National, with headquarters at Dauphin, Man., replacing **G. S. Cooke,** who has retired.

T. J. Womack has been appointed trainmaster on the Southern Pacific Lines in Texas and Louisiana, with headquarters at San Antonio, Tex., succeeding **W. F. Weatherford,** deceased.

J. J. Sullivan, assistant division superintendent on the Southern Pacific, with headquarters at Stockton, Cal., has been appointed assistant to the general manager, with headquarters at San Francisco, Cal.

I. J. McNaughton, general yardmaster on the Canadian Pacific at Brandon, Man., has been promoted to assistant superintendent, with headquarters at Cranbrook, B. C., replacing **A. J. Ironside,** who has been assigned to other duties.

Samuel B. Higginbottom, engineer telegraph and signals on the Western Region of the Pennsylvania, with headquarters at Chicago, has been promoted to inspector of telegraph and signals of the New York Zone and **W. G. Salmonson,** supervisor of telegraph and signals of the Philadelphia division, with headquarters at Harrisburg, Pa., has been promoted to engineer telegraph and signals at Chicago, replacing Mr. Higginbottom. **G. C. Felton,** supervisor of telegraph and signals of the Middle division, with headquarters at Altoona, Pa., has been transferred to the Philadelphia division, relieving Mr. Salmonson and **Gray H. Lefold,** supervisor of telegraph and signals of the Cincinnati division, with headquarters at Cincinnati, Ohio, has been transferred to the Middle division succeeding Mr. Felton. **Kenneth M. Lockerby,** assistant supervisor of telegraph and signals at Wilmington, Del., has been promoted to supervisor of telegraph and signals of the Cincinnati division replacing Mr. Lefold.

B. O. Fryer, roadmaster of the Expanse subdivision of the Canadian Pacific, with headquarters at Moose Jaw, Sask., has been promoted to assistant superintendent and roadmaster of the Prince Albert Terminal and the Meadow Lake, Medstead and Whitkow subdivisions, with headquarters at Prince Albert, Sask., succeeding **Lieut.-Col. J. G. Reid,** deceased.

Walter W. Cunningham, whose promotion to superintendent on the Yazoo & Mississippi Valley (Illinois Central), with headquarters at Vicksburg, Miss., was announced in the *Railway Age* of April 8, was born at Hamburg, Miss., on August 30, 1891, and attended Louisiana State Uni-

Walter W. Cunningham

versity for three years from 1907 to 1909. Mr. Cunningham, whose entire railroad service has been on the old New Orleans division, now the Vicksburg division, of the Y. & M. V., started work in 1904 as a call boy and messenger, later leaving to attend college. On August 16, 1910, he returned to service as a flagman and on October 27, 1916, he was promoted to conductor. He was advanced to assistant trainmaster on July 15, 1926, and on September 12, 1928, he was promoted to trainmaster. On September 30, 1931, his jurisdiction was extended to include the entire division and on April 1, 1937, he was advanced to general agent at Baton Rouge, La. Mr. Cunningham's promotion to superintendent was effective on April 1.

James O'Keeffe, whose appointment as general agent and superintendent of terminals of the Norfolk & Western at Norfolk, Va., was noted in the *Railway Age* of April 8, was born at Narrows, Va. He entered the service of the Norfolk & Western as a scale clerk at Bluefield, W. Va., in October, 1899. A year later he became

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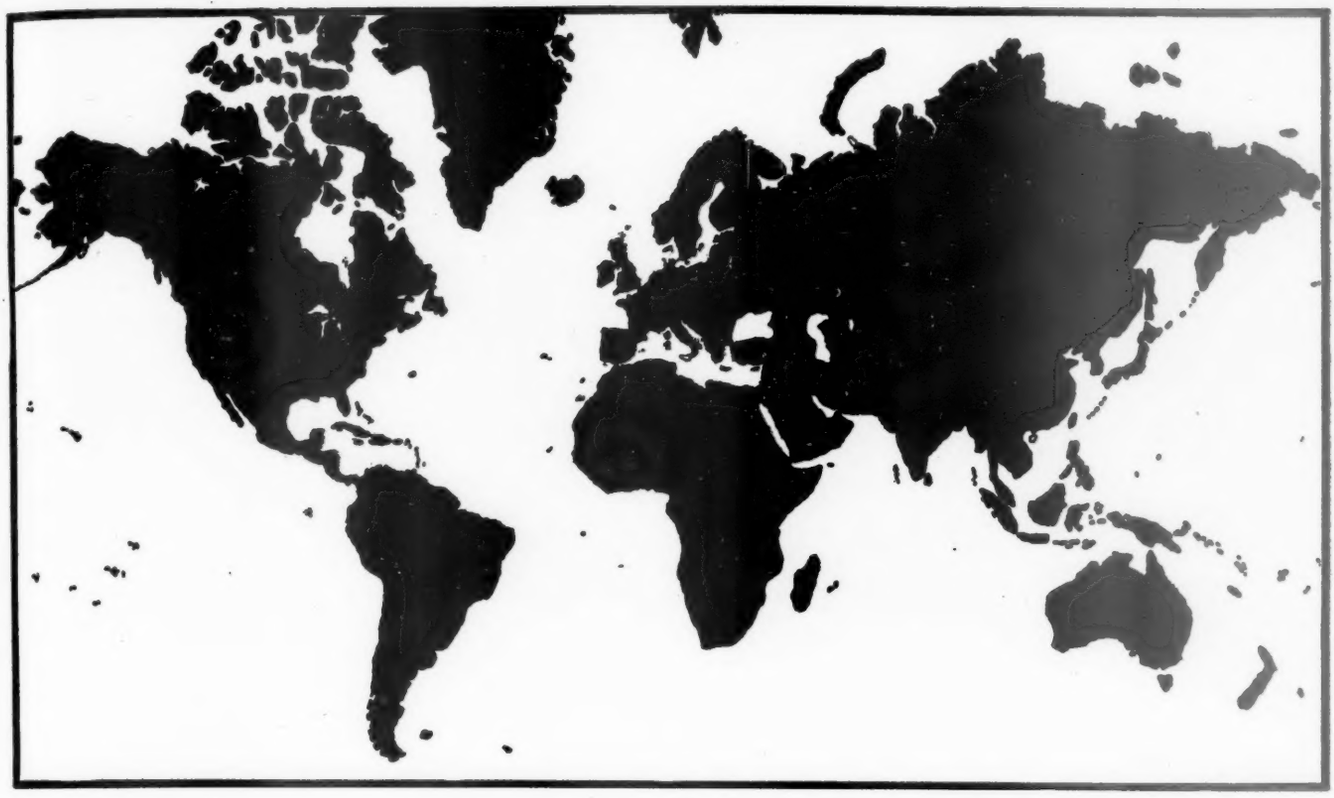

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weighmaster at Vivian, W. Va., and in 1902 he was appointed night yardmaster and then day yardmaster there. Shortly thereafter he resigned, but returned to the N. & W. in 1904 in the same capacity.

James O'Keeffe

Two years later Mr. O'Keeffe was appointed night yardmaster at Williamson, W. Va., and became general yardmaster there in 1907. He was appointed assistant trainmaster of the Pocahontas division in October, 1908, and trainmaster of that division in 1921. On October 1, 1934, Mr. O'Keeffe was appointed superintendent of the Shenandoah division, the position he held until his recent appointment.

R. W. Sheffer, whose appointment as superintendent of the Wilkes-Barre division of the Pennsylvania at Sunbury, Pa., was noted in the *Railway Age* of April 1, was born at York, Pa., on August 9, 1902. He was graduated from Bucknell University with the degree of Bachelor of Science, Civil Engineering, and entered the service of the Pennsylvania on August 1, 1923, as a rodman. On November 17, 1926, he was appointed assistant supervisor of the Delaware division, serving later in the same capacity on the New York division, the Middle division and the Philadelphia Terminal division On

R. W. Sheffer

November 10, 1928, Mr. Sheffer was appointed supervisor of the Sunbury division and was transferred in the same capacity to the Atlantic division in 1929, to the Philadelphia Terminal division in 1930, and to the Panhandle division in July, 1933. He became division engineer in the chief engineer's department at Philadelphia on October 5, 1934, and on June 1, 1935, was transferred to the department of the vice-president in charge of traffic as division engineer, special duty. On November 19, 1935, Mr. Sheffer was transferred to the Middle division as division engineer and on August 9, 1937, was transferred in the same capacity to the Pittsburgh division, the position he held until his recent appointment as superintendent of the Wilkes-Barre division.

TRAFFIC

W. E. Johnson has been appointed general agent for the Texas Electric at Chicago.

T. J. Pittman has been appointed traffic manager of the Fernwood, Columbia & Gulf, with headquarters at Fernwood, Miss., succeeding **E. B. Calhoun.**

Willis Callaway has been appointed assistant to freight traffic manager of the Atlantic Coast Line, with headquarters at Jacksonville, Fla., succeeding **B. H. Taylor,** resigned.

L. A. Powell has been appointed general agent for the Midland Valley, the Kansas Oklahoma & Gulf and the Oklahoma City-Ada-Atoka at Winston-Salem, N. C., a new position.

H. C. Fisher, assistant general freight agent on the New York, Chicago & St. Louis (Nickel Plate), with headquarters at Indianapolis, Ind., retired on April 1, and the position of assistant general freight agent at Indianapolis has been abolished.

S. L. Meade, city freight agent on the Chicago, Rock Island & Pacific at Kansas City, Mo., has been promoted to general agent, with the same headquarters, replacing **R. F. Atwood,** whose retirement was announced in the *Railway Age* of April 1.

B. C. Crook, chief clerk to the assistant freight traffic manager of the Union Pacific at San Francisco, Cal., has been appointed acting general agent, freight department, at that point, relieving **J. L. Totten,** who has taken a leave of absence because of illness.

B. F. McCoy, general agent for the Chicago, Springfield & St. Louis at Ft. Wayne, Ind., and formerly general agent for the Fort Smith & Western at Detroit, Mich., has been appointed assistant general freight agent for the Oklahoma Railway, with headquarters at Detroit, a newly created position.

M. R. Bryan, traveling freight and passenger agent on the Union Pacific, with headquarters at Milwaukee, Wis., has been promoted to general agent at that point, relieving **K. T. Mindeman,** who has been appointed general agent, freight department, at Kansas City, Mo., replacing **R. A. Peters.**

J. G. Moore has been appointed general agent on the Illinois Central at Gulfport, Miss., a new position, and **F. R. Short** has been appointed district agent at Chicago, replacing **W. C. Berg. F. Higgins** has been appointed general agent at Sioux City, Iowa, succeeding to the duties of **P. J. Cramer,** district traffic agent at that point, who has been assigned to other duties.

G. R. Glover, assistant general freight agent on the Chicago, Burlington & Quincy, with headquarters at Omaha, Neb., has been promoted to general freight agent, with headquarters at Denver, Colo., succeeding **R. Wright Armstrong,** who has been transferred to St. Louis, Mo., relieving **W. J. Lahr.** Mr. Lahr has been transferred to Chicago, replacing **Dean E. McKee,** whose death on April 3 is announced elsewhere in these columns. The above appointments are effective on April 16.

John A. Inglis, assistant to vice-president of the Western Maryland with headquarters at Baltimore, Md., has been appointed foreign freight traffic manager, to succeed **W. Scott Burton,** whose death on March 22 was reported in the *Railway Age* of March 25. Mr. Inglis' early rail-

(c) Bachrach

John A. Inglis

road experience was with the New York Central at Cleveland, Ohio; Pittsburgh, Pa., and New York. For several months in 1917 Mr. Inglis was an assistant in the Transportation branch, United States Army, at New York, and served for one year as chief clerk, Eastern Freight Traffic Committee, United States Railroad Administration, New York. From 1919 to 1929, Mr. Inglis was with the B. F. Goodrich Rubber Company, starting as eastern traffic representative, and later was in charge of export sales in New York. He entered the service of the Western Maryland in 1929 as special representative of the president. In the following year he became foreign freight agent, and in 1933 returned to the executive department as an assistant to the president. In 1934, Mr. Inglis was appointed assistant to vice-president—traffic.

Ralph J. Hanson, whose promotion to freight traffic manager in charge of solicitation of the Akron, Canton & Youngstown and the Northern Ohio, with headquarters at Akron, Ohio, was announced in the *Railway Age* of March 11, was born at Somerville, Mass., on September 9, 1891, and attended Winter Hill Business College. He entered railway service in

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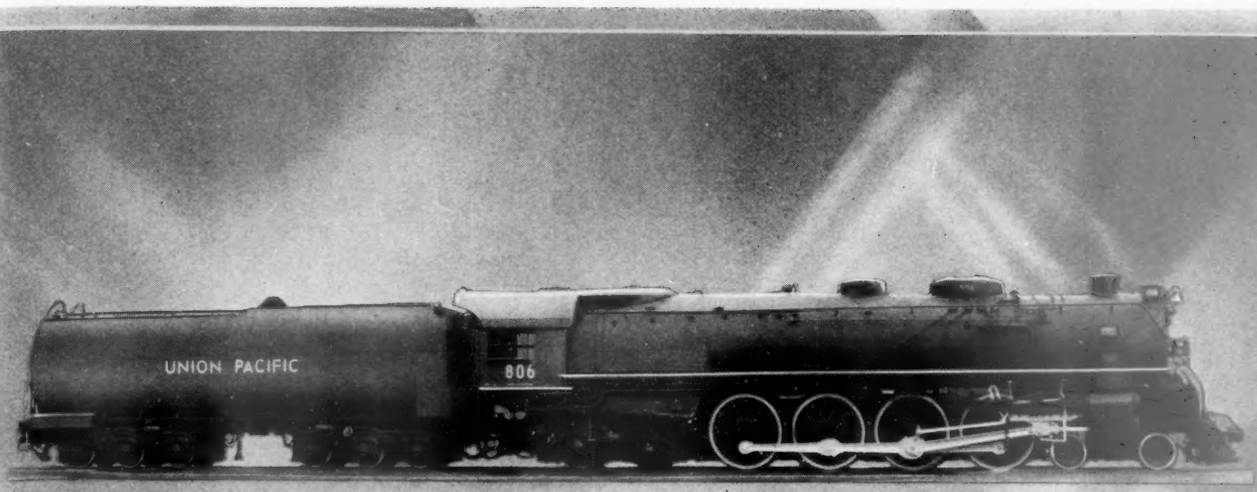

Annual Saving 50.21 Per Cent

TWENTY new 4-8-4 type steam locomotives were placed in service on the Union Pacific in the fall of 1937. During the 12 month period ending December 31, 1938, these locomotives made 3,597,945 miles in heavy fast passenger service, or practically 15,000 miles per month. They showed an availability for service of 93.4 per cent.

As compared to previous 4-8-2 type locomotives they effected a saving in maintenance cost of $301,148. Owing to increased capacity there was a saving of 1,249,030 train miles or approximately 1¼ million dollars. Allowing for fixed charges, including depreciation, interest on the investment, taxes, and maintenance of equipment, the net annual savings of the 20 locomotives represented a return of 50.21 per cent on the investment.

15 more are under order.

AMERICAN LOCOMOTIVE COMPANY
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1914 on the New York, New Haven & Hartford, as a stenographer in the office of the president at Boston, Mass., and in 1915 he was appointed secretary to the general freight agent at New Haven, Conn. During the war, Mr. Hanson enlisted as a private and served 24 months in the Motor Transport Corps, returning from overseas in 1919 with a commission as a first lieutenant. Upon his return, he resumed his former position at New Haven and in 1920 he went with the Lehigh Valley as general agent at that point. In 1925, he was appointed division freight agent with headquarters at Newark, N. J., and in 1930, he was promoted to general agent at Cleveland, Ohio, the position he held at the time of his recent appointment.

MECHANICAL

A. D. Bingman, whose promotion to superintendent of equipment on the New York Central, Lines West of Buffalo, with headquarters at Cleveland, Ohio, was announced in the *Railway Age* of April 8, was born at Jersey Shore, Pa., on April 12, 1885, and entered the service of the New York Central as a machinist at Avis, Pa., in June, 1909. He was promoted to piecework inspector in December, 1911, and in January, 1917, he was advanced to engine terminal foreman. Mr. Bingman was promoted to master mechanic at Utica, N. Y., on February 1, 1928, and was later transferred successively to Harmon, N. Y. and Rensselaer, N. Y. In the fall of 1932, he was appointed assistant master mechanic at Harmon, N. Y., and two years later he was promoted to master mechanic at Albany, N. Y. On May 1, 1938, he was further advanced to assistant superintendent of equipment, Lines West of Buffalo, with headquarters at Cleveland, Ohio. His promotion to superintendent of equipment was effective on April 1.

Raymond C. Cross, whose promotion to assistant superintendent of equipment on the New York Central, Lines West of Buffalo, with headquarters at Cleveland,

Raymond C. Cross

Ohio was announced in the *Railway Age* of April 8, was born in Cleveland, Ohio, on November 7, 1886, and entered the service of the New York Central as a machinist apprentice at the Collinwood locomotive shop on July 1, 1901. In June, 1911, he was promoted to gang foreman at the Collinwood enginehouse and in November, 1911, he resigned to go with the Chicago Great Western as a roundhouse foreman. Four years later he returned to the New York Central and served at various points as terminal foreman until April, 1930, when he was promoted to assistant master mechanic. He was advanced to master mechanic at Collinwood in March, 1934, and held that position until his recent promotion which was effective April 1.

PURCHASES AND STORES

Gus Wickstrom, chief clerk in the purchasing department of the Union Pacific at Omaha, Neb., has been promoted to assistant general purchasing agent, with the same headquarters.

A. S. Galey, district storekeeper of the Algoma district of the Canadian Pacific at North Bay, Ont., has been appointed storekeeper of the general stores at Winnipeg, Man., succeeding **I. G. Trudel,** whose appointment as district storekeeper at Calgary, Alta., was announced in the *Railway Age* of March 25.

Herbert Weindel, storekeeper on the Union Pacific at St. Joseph, Mo., has been promoted to purchasing agent for the Colorado division, with headquarters at Denver, Colo., a newly created position, and **E. O. Brewer,** employed in the purchasing headquarters at Omaha, Neb., has been appointed purchasing agent in charge of a new purchasing office at Kansas City, Mo.

OBITUARY

Homer L. Hunter, office engineer on the Atchison, Topeka & Santa Fe, with headquarters at Topeka, Kan., died suddenly at that point on March 24.

Arthur P. Wells, engineer of tests of the Central of Georgia, with headquarters at Savannah, Ga., died in the company hospital in that city on March 27, after a long illness. He was 66 years old.

George Mitchell, comptroller and assistant secretary of the Manufacturers Junction Railway, with headquarters at Cicero, Ill., died at the age of 54, on April 6, at Ray, Ariz. Mr. Mitchell had been ill for more than a year.

Joseph L. Howell, general attorney of the Terminal Railroad Association of St. Louis, with headquarters at St. Louis, Mo., died in the Missouri Pacific hospital in that city of a heart ailment on April 7. Mr. Howell had been general attorney for the terminal since 1919.

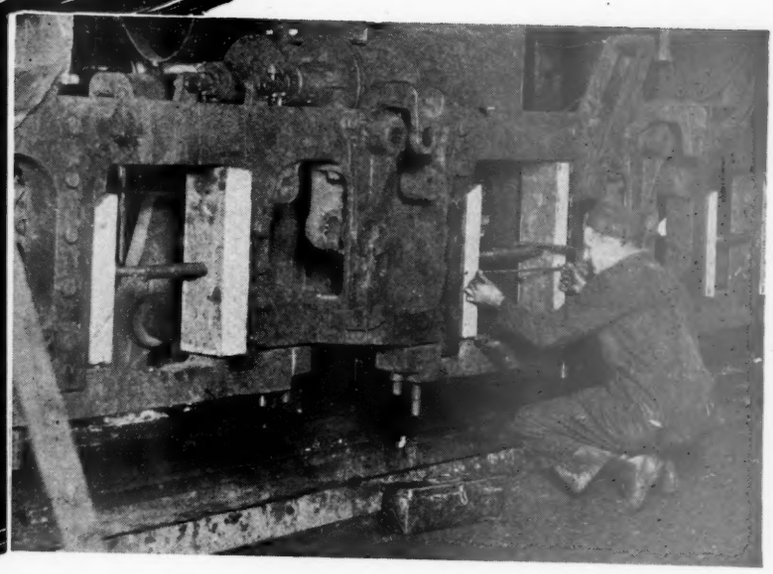
E. Russell Rouzer, superintendent transportation of the Western Maryland, with headquarters at Hagerstown, Md., died on April 7 at the Union Memorial hospital, Baltimore, Md., following a short illness. Mr. Rouzer was born at Thurmont, Md., on February 8, 1883, and entered the service of the West Virginia Central & Pittsburgh at Elkins, W. Va., in 1902 as a clerk. When that railroad was consolidated with the Western Maryland in 1903 he was transferred to the office of the superintendent of car service at Baltimore, and served in various positions in that department until August, 1917, when he was promoted to superintendent of car service. In July, 1918, he was promoted to superintendent transportation at Hagerstown, the position he held at the time of his death.

Dean E. McKee, general freight agent on the Chicago, Burlington & Quincy, with headquarters at Chicago, died in that city on April 3, after a short illness. Mr. McKee was born at Lathrop, Mo., on February 7, 1890, and attended Missouri Wesleyan College. He entered railway service with the Burlington at Louisiana, Mo., in 1908, continuing in various clerical capacities in the traffic department and in station service until the outbreak of the World War. Mr. McKee served overseas during the war with the 128th field artillery, returning to the Burlington after the war as chief clerk to the assistant general freight agent at St. Joseph, Mo. In April, 1922, he was assigned to the general traffic department at Chicago, and in 1923, he was appointed assistant in the commerce department. Mr. McKee was further advanced on January 1, 1925, to chief clerk to the freight traffic manager and on September 1, 1928, he was promoted to assistant general freight agent, with headquarters at Chicago. On April 1, 1936, he was advanced to general freight agent, the position he held at the time of his death.

Persifor Frazer Smith, Jr., former works manager of the Pennsylvania at Altoona, Pa., died at his home in Paoli, Pa., on April 5 after an illness of two months, at the age of 68. Mr. Smith was born at West Chester, Pa., on August 1, 1870, and was graduated from Worralls Technical Academy, West Chester, Pa., in 1887. Following his graduation, Mr. Smith entered the service of the Pennsylvania as special apprentice at the Altoona shops on October 24, 1887. He was appointed assistant road foreman of engines of the Pittsburgh division on February 1, 1892, and on August 1, 1893, he was transferred in the same capacity to the "Fort Wayne Route" of the Pennsylvania Lines West. Mr. Smith was promoted to assistant master mechanic of the Fort Wayne shops on February 1, 1895, and on November 10, 1896, was promoted to master mechanic in charge of the Crestline shops of the Toledo division. He was transferred to the Logansport, Ind., shops in the same capacity on January 1, 1900, to the Dennison, Ohio, shops on March 1, 1903, and to the Columbus, Ohio shops on August 1, 1906. On January 1, 1912, Mr. Smith was promoted to superintendent of motive power of the Central system of the Pennsylvania Lines West and on January 1, 1917, he became general superintendent motive power of the Pennsylvania Lines West of Pittsburgh, at Pittsburgh, Pa. On March 1, 1920, Mr. Smith was appointed works manager of the Pennsylvania in direct charge of the Altoona shops. On April 1, 1925, he was furloughed on account of ill health and on July 1, 1925, became engineer of motive power on the staff of the chief of motive power. He was granted a leave of absence on December 1, 1931.

Operating Revenues and Expenses appears on next left-hand page

Prevent Destructive Pounds



SHOES and Wedges made from HUNT-SPILLER *Air Furnace* GUN IRON offer unusual savings in locomotive maintenance costs.

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Air Furnace

Operating Revenues and Operating Expenses of Class I Steam Railways

Compiled from 136 Monthly Reports of Revenues and Expenses Representing 140 Class I Steam Railways

(Switching and Terminal Companies Not Included)

FOR THE MONTH OF FEBRUARY, 1939 AND 1938

Item	United States		Eastern District		Southern District		Western District	
	1939	1938	1939	1938	1939	1938	1939	1938
Miles of road operated at close of month	233,709	234,790	57,634	58,004	44,520	44,719	131,555	132,067
Revenues:								
Freight	$224,819,047	$198,374,643	$96,237,529	$78,840,025	$48,248,637	$42,955,899	$80,332,881	$76,578,719
Passenger	30,236,646	31,253,973	16,502,565	16,581,843	5,348,926	5,602,311	8,385,155	9,069,819
Mail	7,369,292	7,216,946	2,834,330	2,742,995	1,283,309	1,267,463	3,251,653	3,206,488
Express	2,937,932	2,717,953	996,381	656,606	780,055	695,097	1,161,496	1,366,250
All other operating revenues	11,541,416	11,473,500	5,732,162	5,651,206	1,617,348	1,624,721	4,191,906	4,197,573
Railway operating revenues	276,904,333	251,037,015	122,302,967	104,472,675	57,278,275	52,145,491	97,323,091	94,418,849
Expenses:								
Maintenance of way and structures	30,597,138	29,307,131	12,135,535	11,406,312	6,388,825	6,129,958	12,072,778	11,770,861
Maintenance of equipment	58,960,858	54,760,047	25,678,513	22,680,128	11,469,417	10,686,040	21,812,928	21,393,879
Traffic	8,458,391	8,577,448	3,067,308	3,096,886	1,692,962	1,770,951	3,698,121	3,709,611
Transportation—Rail line	109,082,233	108,763,354	49,479,877	48,107,741	19,079,785	18,932,824	40,522,571	41,722,689
Transportation—Water line	373,664	405,737	.....	.....	.....	.....	373,664	405,737
Miscellaneous operations	2,850,662	3,059,030	1,231,744	1,345,970	484,249	488,801	1,134,669	1,224,259
General	10,452,342	10,659,999	4,252,103	4,252,853	1,950,039	2,032,195	4,250,200	4,374,951
Transportation for investment—Cr.	155,358	178,847	12,051	24,065	37,770	35,211	105,537	119,571
Railway operating expenses	220,619,930	215,353,899	95,833,029	90,865,825	41,027,507	40,005,658	83,759,394	84,482,416
Net revenue from railway operations	56,284,403	35,683,116	26,469,938	13,606,850	16,250,768	12,139,833	13,563,697	9,936,433
Railway tax accruals	27,683,374	27,250,148	11,578,283	11,300,852	5,858,426	5,481,763	10,246,665	10,467,533
Railway operating income	28,601,029	8,432,968	14,891,655	2,305,998	10,392,342	6,658,070	3,317,032	†531,100
Equipment rents—Dr. balance	7,167,099	7,284,252	3,189,471	3,061,261	532,974	611,378	3,444,654	3,611,613
Joint facility rent—Dr. balance	2,843,196	3,057,849	1,481,962	1,586,304	336,619	341,440	1,024,615	1,130,105
Net railway operating income	18,590,734	†1,909,133	10,220,222	†2,341,567	9,522,749	5,705,252	†1,152,237	†5,272,818
Ratio of expenses to revenues (per cent)	79.7	85.8	78.4	87.0	71.6	76.7	86.1	89.5
Depreciation included in operating expenses	16,724,022	16,698,450	7,231,039	7,230,045	3,323,490	3,272,436	6,169,493	6,195,969
Pay roll taxes	7,990,346	7,887,833	3,458,909	3,373,755	1,459,022	1,425,558	3,072,415	3,088,520
All other taxes	19,693,028	19,362,315	8,119,374	7,927,097	4,399,404	4,056,205	7,174,250	7,379,013

FOR TWO MONTHS ENDED WITH FEBRUARY, 1939 AND 1938

Miles of road operated at close of month*	233,767	234,821	57,639	58,006	44,520	44,719	131,608	132,096
Revenues:								
Freight	$471,631,629	$416,679,464	$201,166,211	$166,789,491	$100,916,376	$89,021,923	$169,549,042	$160,868,050
Passenger	65,022,142	68,681,965	35,957,485	37,190,792	10,677,443	11,604,671	18,387,214	19,886,502
Mail	15,295,198	15,082,721	5,824,036	5,702,723	2,709,814	2,692,123	6,761,348	6,687,875
Express	6,294,976	5,139,427	2,211,660	1,394,686	1,661,264	1,257,811	2,422,052	2,486,930
All other operating revenues	24,439,155	24,561,822	12,227,757	12,072,946	3,352,530	3,447,829	8,858,868	9,041,047
Railway operating revenues	582,683,100	530,145,399	257,387,149	223,150,638	119,317,427	108,024,357	205,978,524	198,970,404
Expenses:								
Maintenance of way and structures	61,973,127	59,892,376	24,673,459	23,356,247	13,016,326	12,429,303	24,283,342	24,106,826
Maintenance of equipment	121,066,818	113,041,303	52,929,628	47,140,274	23,564,297	21,943,447	44,572,893	43,957,582
Traffic	16,972,612	17,266,501	6,043,444	6,196,023	3,428,272	3,503,511	7,500,896	7,566,967
Transportation—Rail line	225,810,633	228,792,699	102,307,774	101,433,069	39,416,018	39,608,436	84,086,841	87,751,194
Transportation—Water line	747,011	820,730	.....	.....	.....	.....	747,011	820,730
Miscellaneous operations	6,029,727	6,560,982	2,673,284	2,958,784	973,520	1,007,833	2,382,923	2,594,365
General	21,291,004	21,877,692	8,590,994	8,653,653	3,999,714	4,186,745	8,700,296	9,037,294
Transportation for investment—Cr.	324,552	333,026	29,017	53,168	73,536	63,124	221,999	216,734
Railway operating expenses	453,566,380	447,919,257	197,189,566	189,684,882	84,324,611	82,616,151	172,052,203	175,618,224
Net revenue from railway operations	129,116,720	82,226,142	60,197,583	33,465,756	34,992,816	25,408,206	33,926,321	23,352,180
Railway tax accruals	56,769,775	55,866,009	23,557,868	22,878,523	12,226,417	11,618,229	20,985,490	21,369,257
Railway operating income	72,346,945	26,360,133	36,639,715	10,587,233	22,766,399	13,789,977	12,940,831	1,982,923
Equipment rents—Dr. balance	15,075,690	15,099,576	6,883,842	6,424,851	1,048,596	1,031,277	7,143,252	7,643,448
Joint facility rent—Dr. balance	5,779,802	6,025,655	3,091,693	3,229,037	669,892	659,994	2,018,217	2,136,624
Net railway operating income	51,491,453	5,234,902	26,664,180	933,345	21,047,911	12,098,706	3,779,362	†7,797,149
Ratio of expenses to revenues (per cent)	77.8	84.5	76.6	85.0	70.7	76.5	83.5	88.3
Depreciation included in operating expenses	33,528,331	33,452,412	14,544,000	14,528,920	6,649,989	6,535,958	12,334,342	12,387,534
Pay roll taxes	16,453,282	16,365,480	7,150,137	6,985,520	2,988,464	2,972,483	6,314,681	6,407,477
All other taxes	40,316,493	39,500,529	16,407,731	15,893,003	9,237,953	8,645,746	14,670,809	14,961,780

* Represents an average of the mileage reported at the close of each month within the period.
† Deficit or other reverse items.
Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.